

The Competency Assessment for Responsible Leadership (CARL)

Consolidating the responsible leadership discourse into an operationalized definition and an online tool for practice and education

Katrin Muff, PhD, Business School Lausanne

Anna Liechti

Prof. Dr. Thomas Dyllick, University of St. Gallen

Abstract

The call for responsible leaders in and beyond business is growing around the world. Managers and trainers are looking at management scholars to provide them with a better understanding of the concept and support in translating responsible leadership into practice. With this paper, we summarize the discussion in the literature and highlight the core elements of a definition of responsible leadership. Based on this definition we suggest a two-dimensional framework that helps operationalizing this framework and makes it accessible to testing. In particular, we demonstrate the development and prototyping of an online-tool for competency assessment for responsible leadership that can be used for systematically analyzing and developing responsible leadership competencies for individuals and groups, both in business and educational practices. The online tool will also serve to gather data to further advance the RL definition based on input from practice.

Key words

CARL, Collaboratory, competency assessment, pedagogy, prototyping, responsibility, responsible leadership, sustainable business, sustainability

Note:

Submission of Full Papers:

- Therefore, all author-identifying information should be removed from the paper except for a cover page.
- We advise all non-native speakers to have their papers checked by a native speaker before submission. Papers should be no longer than 35 pages (doublespaced) including tables, graphs, references and endnotes.
- The formatting of the paper has to follow the guidelines of the **Journal of Business Ethics**.
- If a figure contains color, make absolutely clear whether it should be printed in black-and-white or in color.
- Each figure and table should be numbered and mentioned in the text. The approximate position of figures and tables should be indicated in the margin of the manuscript.
- Please submit your to crl2017@up.ac.za

The Competency Assessment for Responsible Leadership (CARL)

Consolidating the responsible leadership discourse into an operationalized definition and an online tool for practice and education

Abstract

The call for responsible leaders in and beyond business is growing around the world. Managers and trainers are looking at management scholars to provide them with a better understanding of the concept and support in translating responsible leadership into practice. With this paper, we summarize the discussion in the literature and highlight the core elements of a definition of responsible leadership. Based on this definition we suggest a two-dimensional framework that helps operationalizing this framework and makes it accessible to testing. In particular, we demonstrate the development and prototyping of an online-tool for competency assessment for responsible leadership that can be used for systematically analyzing and developing responsible leadership competencies for individuals and groups, both in business and educational practices. The online tool will also serve to gather data to further advance the RL definition based on input from practice.

Key words

CARL, Collaboratory, competency assessment, pedagogy, prototyping, responsibility, responsible leadership, sustainable business, sustainability

1. Introduction

In the wake of the financial crisis, the call for responsible leaders in and beyond business has become louder. Business is facing an endless series of scandals that has damaged the trust in companies and business in general. Pless & Maak (2011, p. 3) point to misconduct of leadership and call irresponsible leaders the main cause for the financial crisis. These changes resulted in a call for responsible leaders (RL) has been triggered by significant societal changes and escalating regulatory requirements for the finance industry in particular, but also for business in general. What results from these changes is a call for more responsible leadership in association with good corporate citizenship, by also taking into consideration public interests, not just private interests. This poses some difficult questions regarding the focus of business leaders: Should they focus predominantly on internal concerns or should they focus more on external, societal concerns? Which stakeholders should they give preference to and how should they go about in answering this question? Any attempt to answer these questions quickly demonstrates a need to move beyond a simple “right or wrong” thinking. These questions point to a need to move beyond a simplistic “either or” thinking to embrace the systemic conditions of wicked problems that require an “and and” thinking capacity. The requirement to deal with conflicting or contradicting stakeholder interests beyond and outside traditional organizational boundaries asks for the ability to deal with moral dilemmas and the capacity to behave in fair and ethical ways (Maak and Pless, 2006b, p. 37).

Business practitioners are looking at scholars for guidance and support in clarifying the requirements for RL. We have been repeatedly approached to come up with a clear and simple definition of RL that can be used for personal and leadership development purposes (Muff and Mayenfisch, 2014). These demands include in particular three questions:

- a) Determining the current state of RL competencies - for an individual or for a group;
- b) Assessing the short and long-term effectiveness of RL competencies development;
- c) Evaluating existing training offerings in terms of their RL impact.

This paper provides an answer to these specific demands and presents an online-tool tool for RL competency assessment together with the process used and steps taken to get there. Such a tool serves practical purposes, and will allow more and better generation of data that shall seek to advance the scholarly discourse. The perspective applied is conceptual and it uses comparative analysis. The paper is structured as follows: Section 2 gives a brief overview of the literature with the goal to come up with a clear definition and framework (grid) for RL. Section 3 operationalizes the RL grid into a comprehensive model of 45 competencies across 15 aspects that form the operationalizing RL competencies into a survey. Section 4 demonstrates how the operationalized RL model is translated into an advanced online tool. Section 5 summarizes the prototype development process that accompanied the operationalization and online tool development. Section 6 reviews the three questions by practice and discusses potential applications in business and education. Section 7 draws some conclusions, hints at limitations and further research needs.

2. Towards a definition of Responsible Leadership

Under the heading of RL we find a connection of two different fields of research; research on corporate social responsibility and research on leadership, thereby combining the organizational and the individual level (Waldman 2011, p. 75). This section reviews the scholarly discussion in the area of RL over time and identifies common themes in an attempt to consolidate the insights into a clear RL definition. The review shows how five competency dimensions of RL emerged in the literature: creating, managing and securing good relations with multiple stakeholders, ethically correct and values-based behavior, a continuously developed self-awareness, good understanding of the interdependencies of a larger system, and the ability to lead change and innovation towards sustainable development. In order to assess these dimensions from a developmental perspective, three action domains will be added to complete the proposed two-dimensional framework.

Over the past decade, there have been significant advances in clarifying different dimensions of RL.

Early on, the Globally Responsible Leadership Initiative (GRLI) highlighted ethically correct and values-

based behavior and action in the context of understanding the interconnectedness of the world in their call for globally RL: “Globally responsible leadership is the global exercise of ethical, values-based leadership in the pursuit of economic and societal progress and sustainable development. It is based on a fundamental recognition of the interconnectedness of the world” (GRLI, 2005, p. 15). Doh and Stumpf (2005, p.12) also emphasized ethical and values based behavior and action while also highlighting the importance of developing good relations with stakeholders: “[...] we suggest that the concept of responsible leadership and governance has three important dimensions, each of which can be observed through specific individual or organizational behaviors: (1) values-based leadership; (2) ethical decision making and (3) quality stakeholder relationships”. Shra-Liu and Trompenaars (2006, p. 140) advanced the thinking by combining the understanding of system interdependencies with the need for respecting multiple stakeholder relations: “Thus our definition of responsible leadership is that leaders are those who take responsibility towards the bottom-line and shareholders of the organization, while at the same time - through reconciliation - take responsibility towards integrating a diverse workforce, multicultural customers and suppliers, local and global communities, NGOs, environmental concerns and society at large. These leaders recognize and respect multiple demands, interests, needs and conflicts stemming from diverse responsibilities and reconcile them by mobilizing and successfully engaging the organization and varying stakeholders.”

Maak reinforced the importance of stakeholder relations and contributed a new element to the discussion, namely the active engagement of responsible leaders also outside their organization, in society: “[...] building, cultivating and sustaining trustful relationships to different stakeholders, both inside and outside the organization, and in coordinating responsible action to achieve a meaningful commonly shared business vision” (Maak, 2007, p. 331). Pless further substantiated the idea of active civil engagement and suggested the need and capacity for leading change by embracing the idea of effectiveness as a further element to the catalog of requirements for RL: “a person who reconciles the idea of effectiveness with the idea of corporate responsibility by being an active citizen and promoting active citizenship inside and outside the organization” (Pless, 2007, p. 450). Pless also embraced earlier definitions of ethically correct and values-based behavior and action and connected these with the

idea of creating social change and sustainable value: “values-based and ethical principles driven relationship between leaders and stakeholders who are connected through a shared sense of meaning and purpose through which they raise one another to higher levels of motivation and commitment for achieving sustainable value creation and social change” (Pless, 2007, p. 438). This notion of capacity for change and active civil engagement was further strengthened by Quinn and D’Amato who added the importance of creating systemic change towards sustainable development: “Globally responsible leadership asks business organizations to pay attention to the impact their operations have on the planet – requiring a systemic view and addressing diverse economic, social and environmental issues.” (Quinn and D’Amato, 2008, p. 4).

GRLI’s renewed and updated call for action for globally responsible leadership in many ways reflected the discussions of these initial years. It highlighted the interconnection between a good understanding of system interdependencies and values-based action that is aligned to social progress: “Responsible leadership implies the grounding of actions in a system of values, which recognize societal interdependence and long-term sustainable development. If the firm wishes to lend meaning to its actions and wants to give a purpose to economic progress by aligning it to societal progress, ethics are essential to enlighten tough choices and to guide behaviour. The main ethical question for our time is to choose what kind of world we want to build together with the immense resources we have at our disposal” (GRLI, 2008: 10). Quinn and D’Amato’s focus on company internal activities also rang true with GRLI, which stressed the internal leadership dimension of RL highlighting the demands of being an effective change agent within one’s organization: “Leadership is the art of motivating, communicating, empowering and convincing people to engage with a new vision of sustainable development and the necessary change that this implies. Leadership is based on moral authority. Moral authority requires convictions, character and talent” (GRLI, 2008: 11). With this duality of internal and external focus, there was another emerging duality expressed by Dassah who points toward the duality between short-term economic thinking and long-term sustainability: “Responsible leaders see beyond their organisations, anticipate and embrace socio-environmental concerns and go beyond short-term profit to long-term sustainability as the ultimate mark of success.” (Dassah, 2010: 30).

More recently, two additional perspectives were added. Mirvis and colleagues DeJongh, Googins, Quinn and Van Velsor who presented a multi-dimensional perspective of RL, suggesting three different levels of RL. In addition to the traditional individual level they suggested an organizational and societal level: “Responsible leadership is a function of individual leader (the “Me”), of responsible organizations (the “We”), and of responsible business in the larger ecosystem of investors, consumers, competitors, regulators, and other interests (the “Us”) that provide a context for and also have to act responsibly to legitimate and sustain responsible business leadership.” (Mirvis et. al, 2010, p. 13).

Vögtlin and Muff put a focus on the inner dimension of RL by pointing out the need for self-awareness and reflective capacity. Vögtlin pointed out the need for awareness and consideration of the consequences for all stakeholders: “Responsible leadership can thus be understood as the awareness and consideration of the consequences of one’s actions for all stakeholders, as well as the exertion of influence by enabling the involvement of the affected stakeholders and by engaging in an active stakeholder dialogue.” (Vögtlin, 2011a, p. 59). Muff suggested more pointedly the need for an understanding of oneself: “Responsible leadership requires a deeper empathy and values-based ethic: an innate understanding of oneself, as well as of colleagues, organizations, communities, the environment, and how all these factors relate to one other.” (Muff, 2013, p. 498).

Increasingly, the descriptions of RL became more complex and comprehensive and started to shift to definitions, which may be interpreted as a sign of maturation. A group of scholars comprising both the field of leadership and sustainability attempted to shift from a description to a definition in the context of a call for a radically new purpose of management education, which was built on a reframing of the role of business as well as the understanding of leadership. De Jongh, Shrivastava, North, Haertle, Muff and Dyllick proposed a definition focused on the individual RL level: “Responsible leaders are therefore individuals who reconcile their personal interests or those of their organization within the context of a wider societal responsibility. They build and cultivate relationships with stakeholders to create shared value, taking into account the potential, long-term impact and indirect consequences of their actions.” (Muff et al., 2013: 27–28). Vögtlin’s definition focusses strongly on the importance of stakeholder relations: “Responsible Leadership is to be understood as leading-action, which is expressed by leaders

being (1) conscious of the consequences of their actions for all stakeholders and thus include these stakeholders in their actions and decisions. Furthermore, it implies that leaders exert influence with the goal to (2) encourage an active stakeholder dialogues and public exchange of opinions, to which (3) any concerned party has the opportunity to participate, with the intention that (4) the interests of concerned stakeholders are considered and balanced in a discursive process” (Vögtlin, 2011b, p. 107, translated from German).

This decade-long debate and discussion around the dimensions of RL allows us to weave these different dimensions into a formal definition:

A responsible leader demonstrates a deep understanding of the interdependencies of the system and the own person, is distinguished by an ethical and values-based attitude, and able to build long-term relations with different stakeholders embracing their needs, while initiating change towards sustainable development.

(based on Liechti, 2014: 6).

This definition comprises the five competency dimensions briefly outlined at the beginning of this section: creating, managing and securing good relations with multiple stakeholders, ethically correct and values-based behavior, highly developed self-awareness, good understanding of the interdependencies with a larger system, and the ability to lead change and innovation towards sustainable development. Table 1 provides a summative overview of the literature review and the competencies found:

Author source	Elements
Dassah, 2010: 30	<ul style="list-style-type: none"> • Understanding the interdependencies of the system
Doh & Stumpf, 2005: 12	<ul style="list-style-type: none"> • Ethically correct and values-based behavior and action • Relationship with stakeholders
GRLI, 2005: 15	<ul style="list-style-type: none"> • Ethically correct and values-based behavior and action • Change and active engagement • Understanding the interdependencies of the system
GRLI, 2008: 10	<ul style="list-style-type: none"> • Understanding the interdependencies of the system • Ethically correct and values-based behavior and action
GRLI, 2008: 11	<ul style="list-style-type: none"> • Change and active engagement • Ethically correct and values-based behavior and action
Maak, 2007: 331	<ul style="list-style-type: none"> • Relationship with stakeholders • Change and active engagement

Author source	Elements
Mirvis et. al, 2010: 13	<ul style="list-style-type: none"> • Understanding the interdependencies of the system
Muff, 2013: 498	<ul style="list-style-type: none"> • Self-awareness • Understanding the interdependencies of the system • Ethically correct and values-based behavior and action
Muff et al., 2013: 27–28	<ul style="list-style-type: none"> • Understanding the interdependencies of the system • Relationship with stakeholders
Pless, 2007: 438	<ul style="list-style-type: none"> • Ethically correct and values-based behavior and action • Relationship with stakeholders • Change and active engagement
Pless, 2007: 450	<ul style="list-style-type: none"> • Change and active engagement
Quinn & D'Amato, 2008: 4	<ul style="list-style-type: none"> • Understanding the interdependencies of the system • Change and active engagement
Schraa-Liu & Trompenaars, 2006: 140	<ul style="list-style-type: none"> • Understanding the interdependencies of the system • Relationship with stakeholders
Vögtlin, 2011a: 59	<ul style="list-style-type: none"> • Relationship with stakeholders
Vögtlin, 2011b: 107	<ul style="list-style-type: none"> • Relationship with stakeholders

Table 1: Overview of key responsible leadership competencies from the literature review

While the definition of RL provides an answer to the question “What does RL mean?” or “What are the key competencies of RL?” there is a second core question we want to address: “What are the relevant domains of action?” In order to define the domains of action, we rely on the three action domains as used by Datar et al. (2010, p.104): knowing, doing, and being. Euler and Hahn (2007, p. 78) refer to them as knowledge, skills, and attitudes. By putting together these two dimensions, we obtain a two-dimensional framework, the “Responsible Leadership Grid”. It includes the five competency dimensions and the three domains of action what results in 15 aspects overall (see Table 2).

<i>Domains of Action (columns)</i>	<i>Knowing (knowledge)</i>	<i>Doing (skills)</i>	<i>Being (attitudes)</i>
Competency dimensions (rows)			
Stakeholder relations	1	6	11
Ethics and values	2	7	12
Self-awareness	3	8	13
Systems thinking	4	9	14
Change and innovation	5	10	15

Table 2: Responsible Leadership Grid (Liechti, 2014)

In the next section, the paper investigates the operationalization of these 15 competency areas into a comprehensive RL model with 45 sub-competencies.

3. Operationalizing responsible leadership into sub-competencies

The question arises how these 15 aspects of RL in its five competency dimensions and three domains of action can be operationalized and later be made measurable? Based on a literature review and tested in our prototyping (see Section 5), we identified three sub-competencies for each of the 15 aspects resulting in 45 sub-competencies across the whole RL Grid. Let us look at each of the five competency dimensions one after the other to specify its nine specific sub-competencies.

Let us look first at the sub-competencies and its sources in the dimension of **stakeholder relations** (**Table 3**). In the *knowledge domain* we identified methods to identify and integrate legitimate stakeholder groups, seeing conflict as a foundation for creativity, and dealing with conflicting interests of stakeholders as most relevant sub-competencies. The *skills domain* we identified initiating and moderating a dialogue (authentic communication), respecting different interests to find a consensus (including active listening , respecting other opinions and concerns and constructive resolution of conflict), and developing long-term relationships (including building trust with others). The *attitudes domain* covers being empathic with a desire to help others, being open and trustworthy, and appreciating the positive in diversity.

Stakeholder relations	Competencies	Source
1. Knowledge	Methods to identify and integrate legitimate stakeholder groups	Formulation developed by authors based on other sub-competencies
2. Knowledge	Seeing conflict as a foundation for creativity	Formulation developed by authors based on other sub-competencies
3. Knowledge	Dealing with conflicting interests of stakeholders	Vögtlin, 2011b, p. 226
4. Skills	Initiating and moderating a dialogue (authentic communication)	Muff, 2012, p. 655, Svanström et al., 2008, p. 347, Vögtlin, 2011b, S. 204
5. Skills	Respecting different interests to find a consensus (active listening, solving conflicts constructively)	GRLI, 2005, p. 18; Marquardt & Berger, 2000, p. 23, Svanström et al. 2008, p. 347, Vögtlin, 2011b, p. 229
6. Skills	Developing long-term relationships (developing trust)	GRLI, 2005, p. 18, Marquardt & Berger, 2000, p. 23; Dassah, 2010, p. 33; Wade, 2006, p. 241
7. Attitudes	Being empathic with a desire to help others	Marquardt & Berger, 2000, S. 22-23; Wiek et al., 2011, p. 211
8. Attitudes	Being open and trustworthy	GRLI, 2005, p. 24, Pless & Schneider, 2006, p. 218
9. Attitudes	Appreciating the positive in diversity	Sterling & Thomas, 2006, p. 360 & 363; Muff et al., 2013, p. 36

Table 3: Sub-competencies and their sources in the stakeholder relations dimension

In looking at the sub-competencies and sources in the **ethics and values** dimension we identified the following sub-competencies (Table 4): The *knowledge* domain comprises understanding dilemmas, in addition to knowing what is right and wrong, and knowing your own values. The *skills* domain is summarized into the following three aspects: critically questioning and adapting values, acting according to ethics and own values, and being a role model. The *attitudes* domain is grouped into: being honest and integer, seeking fairness, and being responsible towards society and sustainability (serving the common good).

Ethics & values	Competencies	Source
10. Knowledge	Knowing what is right and wrong	Pless & Schneider, 2006, p. 218
11. Knowledge	Knowing your own values	Dassah, 2010, p. 33; Sterling & Thomas, 2006, p. 362; Maak & Pless, 2006b, p. 37
12. Knowledge	Understanding dilemmas	Dassah, 2010, p. 33; Pless & Schneider, 2006, p. 218
13. Skills	Critically questioning and adapting values	Maak & Pless, 2006b, S. 43, Dassah, 2010, S. 33 (vgl. moral reflection)
14. Skills	Acting according to ethics and own values (including ethical aspects in decisions)	Muff et al., 2013, p. 33; Maak & Pless, 2006b, p. 37, 42, Pless & Schneider, 2006, p. 218
15. Skills	Acting as a role model	Marquardt & Berger, 2000, p. 27; Pless & Schneider, 2006, p. 218
16. Attitudes	Being honest and integer	Svanström et al., 2008, p. 348
17. Attitudes	Seeking fairness	Sterling & Thomas, 2006, p. 360 & 363
18. Attitudes	Being responsible towards society and sustainability (serving the common good)	Muff et al., 2013, p. 37, Sterling & Thomas, 2006, p. 363

Table 4: Sub-competencies and their sources in the ethics and values dimension

The sub-competencies and sources in the **self-awareness** dimension include the following elements (Table 5): In the *knowledge* domain the following sub-competencies are identified: understanding the importance of reflection in the learning process, knowing oneself (including own emotions, interests, needs and mental models), and understanding one's own strengths and weaknesses. The *skills* domain comprises learning from mistakes, reflecting on one's behavior, mental models and emotions (including identifying and accepting own strengths and weaknesses), and adapting the communication style (using emotions consciously). The *attitudes* domain includes: reflecting about oneself, reflecting about one's own behavior, as well as sharing one's developmental challenges.

Self-awareness	Competencies	Source
19. Knowledge	Understanding the importance of reflection in the learning process	Formulation developed by authors based on other sub-competencies
20. Knowledge	Knowing oneself (own needs, emotions, mental models)	Dassah, 2010, p. 33, Schraa-Liu & Trompenaars, 2006, p. 150
21. Knowledge	Understanding one's own strengths and weaknesses	Marquardt & Berger, 2000, p. 24
22. Skills	Learning from mistakes (identifying and accepting strengths and weaknesses)	Muff et al., 2013, p. 33; Scalberg, 2005, p. 383 Wade, 2006, p. 241
23. Skills	Reflecting on one's behavior, mental models & emotions	Svanström et al., 2008, p. 347; Sterling & Thomas, 2006, p. 362
24. Skills	Adapting the communication style (using emotions consciously)	Dassah, 2010, p. 33
25. Attitudes	Reflecting about oneself	Wade, 2006, p. 241
26. Attitudes	Reflecting about one's own behavior	Wade, 2006, p. 241
27. Attitudes	Sharing one's developmental challenges	Formulation developed by authors based on other sub-competencies

Table 5: Sub-competencies and their sources in the self-awareness dimension

Table 6 provides an overview of the sub-competencies and its sources in the **systems thinking** dimension. The *knowledge* domain features understanding how the systems works, understanding the interdependencies & inter-connections of the system, and understanding sustainability challenges and opportunities. The *skills* domain is grouped into: dealing with complexity and ambiguity (including working across disciplines), estimating consequences of decisions on the system, seeing the big picture and the connections rather than the parts. The *attitudes* domain includes working across disciplines & boundaries, defending a long-term perspective, and providing a trans-generational perspective.

Systems thinking	Competencies	Source
28. Knowledge	Understanding how the systems works	Formulation developed by authors based on other sub-competencies
29. Knowledge	Understanding inter-dependencies and inter-connections of systems	Svanström et al., 2008, p. 348; Sterling & Thomas, 2006, p.364
30. Knowledge	Understanding sustainability challenges and opportunities	Svanström et al., 2008, p. 347
31. Skills	Dealing with complexity and ambiguity (working across disciplines)	Muff et al., 2013, p. 33, Pless & Schneider, 2006, p. 217, Svanström et al., 2008, p. 348
32. Skills	Estimating consequences of decisions on the system (identifying connections)	Marquardt & Berger, 2000, p. 24; Sterling & Thomas, 2006, p. 364, Svanström et al., 2008, p. 347
33. Skills	Seeing the big picture and the connections rather than the parts (thinking in systems)	Marquardt & Berger, 2000, p. 24; Muff et al., 2013, p. 33; Scalberg, 2005, p. 383; Sterling & Thomas, 2006, S. 364 Svanström et al., 2008, p. 348; Wiek et al., 2011, p. 207
34. Attitudes	Working across disciplines and boundaries	Sterling & Thomas, 2006, p. 362 & 363
35. Attitudes	Defending a long-term perspective	Based on Wilson et al., 2006, p. 20
36. Attitudes	Providing a trans-generational perspective	Muff et al., 2013, p. 33

Table 6: Sub-competencies and their sources in the systems thinking dimension

Table 7 summarizes the sub-competencies and sources in the **change and innovation** dimension. The knowledge domain includes understanding the significance of a motivating vision in change processes, understanding the drivers and enablers of innovation and creativity, as well as understanding the conditions, functioning and dynamics of change processes. The *skills* domain is grouped into: developing creative ideas (including out-of-box thinking, thinking in a visionary manner and advancing innovations), acting to bring about change and translating ideas into action, as well as questioning the status-quo and identifying steps of change for a sustainable future. The *attitudes* domain is summarized into: being open, curious and courageous, being flexible and adaptable for change, and being visionary in finding solutions for society's problems (including being convinced of the public impact of action, and having endurance to finish initiatives).

Chang & innovation	Competencies	Source
37. Knowledge	Understanding the significance of a motivating vision in change processes	Formulation developed by authors based on other sub-competencies
38. Knowledge	Understanding the drivers & enablers of innovation & creativity	Formulation developed by authors based on other sub-competencies
39. Knowledge	Understanding conditions, functioning and dynamics of change processes	Formulation developed by authors based on other sub-competencies
40. Skills	Developing creative ideas (out-of-box thinking, advancing innovation)	Scalberg, 2005, S. 383; Wiek et al., 2011, S. 209
41. Skills	Acting to bring about change and translating ideas into action (involving and inspiring others)	Sterling & Thomas, 2006, p. 360 & 363, Svanström et al., 2008, p. 348, Wiek et al., 2011, S. 210
42. Skills	Questioning the status-quo and identifying steps of change for a sustainable future (visionary thinking)	Muff et al., 2013, S. 33; Svanström et al., 2008, S. 347-348; Wiek et al., 2011, S. 207
43. Attitudes	Being open, curious and courageous	Svanström et al., 2008, p. 348
44. Attitudes	Being flexible and adaptable for change	Muff, 2012, p. 655
45. Attitudes	Being visionary in finding solutions for society's problems (and having endurance)	Muff et al., 2013, p. 33, Svanström et al., 2008, p. 348

Table 7: Sub-competencies and their sources in the change & innovation dimension

Table 8 provides an overview of all 45 sub-competencies of RL identified and summarized from an extensive literature review as well as some additions from the authors to come up with a balanced RL Grid (Muff, 2016).

Domains of action Competency dimensions	Knowledge (knowing)	Skills (doing)	Attitude (being)
Stakeholder relations	1. Methods to identify and integrate legitimate stakeholder groups 2. Seeing conflict as a foundation for creativity 3. Dealing with conflicting interests of stakeholders	4. Initiating and moderating a dialogue 5. Respecting different interests to find a consensus 6. Developing long-term relationships	7. Being empathic with a desire to help others 8. Being open and trustworthy 9. Appreciating the positive in diversity
Ethics & values	10. Knowing what is right and wrong 11. Knowing your own values 12. Understanding dilemmas	13. Critically questioning and adapting values 14. Acting according to ethics and own values 15. Acting as a role model	16. Being honest and integer 17. Seeking fairness 18. Being responsible towards society and sustainability
Self-awareness	19. Understanding the importance of reflection in the learning process 20. Knowing oneself 21. Understanding one's own strengths and weaknesses	22. Learning from mistakes 23. Reflecting on one's behavior, mental models and emotions 24. Adapting the communication style	25. Reflecting about oneself 26. Reflecting about one's own behavior 27. Sharing one's developmental challenges
Systems thinking	28. Understanding how the systems works 29. Understanding inter-dependencies and inter-connections of systems 30. Understanding sustainability challenges and opportunities	31. Dealing with complexity and ambiguity 32. Estimating consequences of decisions on the system 33. Seeing the big picture and the connections rather than the parts	34. Working across disciplines & boundaries 35. Defending a long-term perspective 36. Providing a trans-generational perspective
Change & innovation	37. Understanding the significance of a motivating vision in change processes 38. Understanding the drivers and enablers of innovation and creativity 39. Understanding conditions, functioning and dynamics of change processes	40. Developing creative ideas 41. Acting to bring about change and translating ideas into action 42. Questioning the status-quo and identifying steps of change for a sustainable future	43. Being open, curious and courageous 44. Being flexible and adaptable for change 45. Being visionary in finding solutions for society's problems

Table 8: Responsible Leadership Grid consisting of 45 sub-competencies (Muff 2016)

4. Translating the Responsible Leadership Grid into a measurable online tool

Finding a way to measure the 45 sub-competencies in practice and education requires some hard thinking and innovation. While students tend to be willing to complete a traditional Likert-scale survey, our practice test company told us clearly that their leaders would not spend 20-30 minutes on

completing a survey. We were also cautioned about the risk of receiving survey input with significant issues of social desirability. Our research partner Fehr Advice in Zurich, Switzerland, the applied arm of well-known behavioral economist Ernst Fehr from University of Zurich, offered an interesting solution that would resolve both the time and the social desirability issues. They provided a smart technology based on assessing response time that was found effective in circumventing the issue of social desirability while significantly reducing the overall survey time.

Their technology is based on the measurement of user reaction times, taking into account reading speed. The advantage of this assessment lies in the possibility to thus mitigate the effects of social desirability. Non-veridical responding is reflected in longer response times, which are as a result discounted or excluded. The tool measures an association strength for each survey item (a range from -1 to +1, after re-coding of negatively phrased survey questions, with +1 representing a positive association). The assessment tool works with the initial first instinctive reaction a respondent has to a question, preventing and excluding the option to reflect and thus to select a social desirable answer. The result of a participant's answer is not dichotomous, but a score indicating the extent to which a participant agreed or disagreed to a particular statement, resulting in a more nuanced reflection of respondents' skills and attitudes than standard survey questions. The survey is completed in less than five minutes and needs to be taken without interruption in order to generate relevant reaction times and results. The online tool is called the "Competency Assessment for Responsible Leadership" (CARL) and can be freely accessed either through the dedicated website www.carl-test.org or by using the following link: <http://survey.carl-test.org>

A joined research team consisting of the authors and the researchers at Fehr Advice compared the operationalized items of our literature-based survey questions with the existing set of surveys in the area of human decision-making. At the same time, we reviewed existing leadership related surveys to covers areas that were not addressed by the existing range of their online tools. These survey included the Socially Responsible Leadership Scale (Dogan, 2006), the Global Executive Leadership Inventory (Manfred and DeVries, 2005) and the Ethical Leadership Scale (Brown & al, 2005), Furthermore,

formulated questions from Hosenfeld (2010), Kotrubczik (2008) and Scherhorn et al (2012b) were also reviewed, amended for the response-time type of situation and subsequently tested.

Appendix 1 shows an overview of the 45 sub-competency aspects and the initially considered and ultimately selected online survey questions generated by the behavior economics survey methods developed by Fehr Advice. The research team identified a total 127 potential questions that may match and selected a final 16 questions that were deemed suitable to assess the responsible leadership competencies identified. These questions were generated from four online survey sources (Hexaxo survey, Playfulness survey, Global Preferences survey and the Dark triad survey). These were complemented with an additional eight own formulations that were developed specifically by the research team in this context, adding up to 24 survey questions using the time-sensitive online survey technology developed by Fehr Advice. A total of 21 existing off-line survey questions from the Global Executive Leadership Inventory (GELI), the Socially Responsible Leadership Scale (SRLE-R3), Hosenfeld, Kotrubczik and own developed questions for the education prototype were used in the area of self-awareness and across the other 4 areas of RL to ensure suitability with the original sub-competencies. Of the 21 off-line survey questions, eight needed to be adapted after an initial online testing and three existing online questions were recoded (reversed formulation for better functionality). The resulting survey was both validated by four subject experts and initially tested by about 10 persons for clarity, understanding and redundancy. Of the amended eight off-line questions, five originated from own formulations, two from Kotrubczik and one from the Socially Responsible Leadership Scale. All three online questions that were amended originated from the Playfulness survey. Table 9 provides an overview of the different survey questions' sources:

Source	No. of items	Source detail
21 Off-line surveys	4	Global Executive Leadership Inventory
	3	Hosenfeld
	2	Socially Responsible Leadership Scale
	2	Kotrubczik
	10	Own formulation (used with students)
24 Online surveys	5	Hexaxo survey (Fehr online tested)
	5	Playfulness survey (Fehr online tested)
	5	Global preferences survey (Fehr online tested)
	1	Dark triad survey (Fehr online tested)
	8	Own formulation (Fehr online tested)
45 Total	45	Total items

Table 9: Summary overview of sources for survey questions

A comprehensive overview of the finalized questions is provided in the next five tables below. Table 10 provides an overview of the questions and sources of the stakeholder relations dimension. In total, four of the nine questions came from the tested Fehr behavioral economics online tools, and five were adopted from traditional RL offline surveys.

	Code	Attribute	Source of item	Survey question
Stakeholder relations	SK1	•Methods to identify & integrate legitimate stakeholder groups	HEXAXO survey (Fehr) Q40	The first thing that I always do in a new place is to make friends.
	SK2	•Seeing conflict as a foundation for creativity	Socially Responsible Leadership Scale (SRLS-R3) by Dougan (2006)	Conflicts can be a basis for creativity.
	SK3	•Dealing with conflicting interests of stakeholders	Own formulation (BE19 adapted and recoded)	Finding consensus among different stakeholders is a waste of time.
	SS1	•Initiating and moderating a dialogue	Own formulation (BE07 adapted)	I am able to initiate and moderate a dialogue among stakeholders.
	SS2	•Respecting different interests to find a consensus	HEXAXO survey (Fehr) Q33	I tend to be lenient in judging other people.
	SS3	•Developing long-term relationships	Own formulation (BE03)	Most of my friends I've known for many years.
	SA1	•Being empathic with a desire to help others	Playfulness survey (Fehr) Q3 adapted	I like to cheer up other people and make them happy.
	SA2	•Being open & trustworthy	Global preferences survey (Fehr) Q8	I assume that people have only the best intentions.
	SA3	•Appreciating the positive in diversity	Global Executive Leadership Inventory (GELI) by Kets de Vries (2005, p.14)	I like working in diverse teams.

Table 10: Overview of CARL online survey questions for stakeholder relations

Table 11 shows the questions and their sources for the nine sub-competencies in the ethics and values domain. Five questions were developed based on own formulations, three of them first tested with

students and two developed for the online survey. The remaining four questions were generated directly from the Fehr Advice online tools.

	Code	Attribute	Source of item	Survey question
Ethics and values	EK1	•Knowing what is right and wrong	HEXAXO survey (Fehr) Q36	I would never accept a bribe, even if it were very large.
	EK2	•Knowing your own values	Own formulation (ET06)	I am aware of the values that are important to me.
	EK3	•Understanding dilemmas	Own formulation (ET04 improved)	Dilemma situations can never be solved.
	ES1	•Critically questioning and adapting values	Own formulation (ET06)	I regularly question my values and adapt them if necessary.
	ES2	•Acting according to ethics and own values	Own formulation	It is important to me that I always act according to my values.
	ES3	•Being a role model	Own formulation	I always try to act as a role model.
	EA1	•Being honest and integer	Dark Triad survey (Fehr) Q27 recoded	I'll say anything to get what I want.
	EA2	•Seeking fairness	Global preferences survey (Fehr) Q4	I am willing to punish someone who treats others unfairly, even if it incurs costs on me.
	EA3	•Being responsible towards society and sustainability	Global preferences survey (Fehr) Q11	If I'd unexpectedly receive money, I would donate part of it to a good cause.

Table 11: Overview of CARL online survey questions for ethics and values

Table 12 lists the questions and their sources for the nine sub-competencies in the self-awareness dimension. None of the existing online survey questions by Fehr proved relevant and insights from existing leadership surveys including the Global Executive Leadership Inventory (GELI), the Socially Responsible Leadership Scale (SRLE-R3), Hosenfeld and Kotrubczik were used together with own formulations developed and tested prior to their adaptation to the online response-time survey.

	Code	Attribute	Source of item	Survey question
Self-awareness	AK1	•Understanding the importance of reflection in the learning process	Own formulation (IB01 adapted and recoded)	The ability to reflect is quite irrelevant for learning new things.
	AK2	•Knowing oneself	Hosenfeld (2010, p. 212)	I think I know myself very well and how I behave in different situations.
	AK3	•Understanding one's own strengths and weaknesses	Own formulation (IB07)	I am aware of my strengths and weaknesses.
	AS1	•Learning from mistakes	Global Executive Leadership Inventory (GELI) by Kets de Vries (2005, p.14)	I've never done the same mistake twice.
	AS2	•Reflecting on one's behavior, mental models and emotions	Kotrubczik (2008, p. 45) - recoded	I hardly ever reflect on my values, ways of thinking, and ways of behaving.

	AS3	•Adapting the communication style	Global Executive Leadership Inventory (GELI) by Kets de Vries (2005, p.14)	I adapt my communication according to the situation.
	AA1	•Reflecting about oneself	Global Executive Leadership Inventory (GELI) by Kets de Vries (2005, p.14)	I'm interested in my own mistakes so I can learn from them.
	AA2	•Reflecting about one's own behavior	Hosenfeld (2010, p. 212)	I like to exchange ideas with others regarding how to improve my behavior.
	AA3	•Sharing one's developmental challenges.	Hosenfeld (2010, p. 212)	I ask others about areas in which I have potential for improvement.

Table 12: Overview of CARL online survey questions for the self-awareness dimension

Table 13 indicates the survey questions and related sources for the nine areas in the systems thinking dimension. Five questions were developed based on insights gained from the RL grid resulting in own formulations of which three were tested in off-line surveys. Four questions were generated from Fehr Advice. There is a clear advantage of using existing response-time questions given their profound testing of more than 1000 completed survey as compared to translating questions using different survey methodologies, such as a Likert-scale.

	Code	Attribute	Source of item	Survey question
Systems thinking	TK1	•Understanding how the systems works	Own formulation	I think through a problem until I understand it in detail.
	TK2	•Understanding inter-dependencies & inter-connections of systems	Playfulness survey (Fehr) Q5 recoded	I dislike working out solutions for very complex problems.
	TK3	•Understanding sustainability challenges and opportunities	Own formulation	The welfare of people and nature is important to me.
	TS1	•Dealing with complexity and ambiguity	HEXAXO survey (Fehr) Q53	Even in an emergency I wouldn't feel like panicking.
	TS2	•Estimating consequences of decisions on the system	HEXAXO survey (Fehr) Q20 recoded	I make decisions based on the feeling of the moment rather than on careful thought.
	TS3	•Seeing the big picture and the connections rather than the parts	Own formulation (recoded)	I sometimes get lost in details.
	TA1	•Working across disciplines & boundaries	Own formulation (SY03)	When looking for solutions I integrate insights from diverse disciplines.
	TA2	•Defending a long-term perspective	Playfulness survey (Fehr) Q2	I prefer to plan ahead rather than living from day to day.
	TA3	•Providing a trans-generational perspective	Own formulation	When making decisions one should also consider future generations.

Table 13: Overview of CARL online survey questions for the systems thinking dimension

Table 14 summarizes the survey questions and related sources for the nine sub-competencies in the change and innovation dimension. In this area, a mixture of sources was selected for a best result with two questions from the RL literature (the SRLS-R3 and Kotrubczik), two questions each from the Playfulness and the Global Preferences survey (Fehr), as well three own formulations of which two generated for the benefit of this response-time online survey.

	Code	Attribute	Source of item	Survey question
Change & Innovation	CK1	•Understanding the significance of a motivating vision in change processes	Socially Responsible Leadership Scale (SRLS-R3) by Dougan (2006) - improved and recoded	To make change happen successfully, having a vision is not important.
	CK2	•Understanding the drivers and enablers of innovation and creativity	Own formulation	I know what it takes to be innovative and creative.
	CK3	•Understanding conditions, functioning and dynamics of change processes	Own formulation	I am aware of the conditions and dynamics of change processes.
	CS1	•Developing creative ideas	Playfulness survey (Fehr) Q9 adapted	I like developing new ideas with a playful approach.
	CS2	•Acting to bring about change and translating ideas into action	Global preferences survey (Fehr) Q1 adapted and recoded	I am generally quite unwilling to take risks to bring about change.
	CS3	•Questioning the status-quo and identifying steps of change for a sustainable future	Own formulation (VE09 adapted)	I often question the status-quo and initialize change.
	CA1	•Being open, curious and courageous	Global preferences survey (Fehr) Q17 adapted	Excitement, novelty, and challenge in life are very important things to me
	CA2	•Being flexible and adaptable for change	Playfulness survey (Fehr) Q14	You shouldn't take everyday routine too seriously, but rather improvise if something doesn't work out.
	CA3	•Being visionary in finding solutions for society's problems	Kotrubczik (2008, p. 45) - improved	It is important to me to find solutions to problems that are relevant to society.

Table 14: Overview of CARL online survey questions for the change and innovation dimension

5. Prototyping the operationalization for the online questionnaire

In order to prototype the process of operationalizing the 45 competencies into an online questionnaire and tool we used four different assessments:

1. The survey questions were tested during a two-year period in a suitable Master course at a university in order to assess the relevance of the RL dimensions in a real-life situation.
2. The survey was amended to fit the limited time availability of business practitioners in a sizable in-company assessment exercise, with the purpose to understand the usefulness and applicability of the survey results and the RL Grid in real-life.
3. The outcomes of the first and the second assessments were shared with thought leaders from academia and practice in order to highlight potential shortcomings and challenges.
4. The online tool was exposed to a Beta-test involving 103 users in order to allow the required calibration of the response rates and the generation of the automated results.

1. Survey question assessment in a Master course

A Master course in the area of applied business sustainability using a student-based pedagogy was selected to test the operationalization of the RL Grid. The course was considered due to its innovative and experiential approach that was considered an ideal platform for developing responsible leadership competencies in a Master's level university course (Dyllick and Muff, 2014). The 12-week Master course called "Strategies for Sustainable Development" at the University of St. Gallen was reviewed for a suitable educational practice test for the RL operationalization. The authors reviewed the end-of-course reflection papers of students, which represented a mandatory requirement for completing the course and represented an integral part of the final grade. These papers were coded in accordance to the RL definitions in order to assess the suitability for prototyping an RL operationalization using this course.

During a two-year period, the RL operationalization was used both before and after the course as a way to test the operationalization with multiple-choice questions. The survey investigated to what degree and extent this specific course develops competencies of responsible leaders.

Both the execution and completion objectivity criteria were confirmed by ensuring identical instructions to all students when completing the survey, and the multiple-choice survey. The reliability was evaluated and confirmed through the Cronbach-alpha, albeit only slightly in some domains (the Cronbach-alpha should be significantly above 0.5 but is only slightly above 0.5 in some areas).

Given the small sample size (n=33) for the quantitative survey, the Wilcoxon test for normal distribution was not granted, as the data was ordinal rather than interval scaled. The boxplot in Figure 1 visually compares these averages of 5.05 (before) versus 5.23 (after) on a scale of 1 (entirely wrong) to 7 (entirely correct) indicating a 'very significant' statistical relevance (p-value of 0.0087).

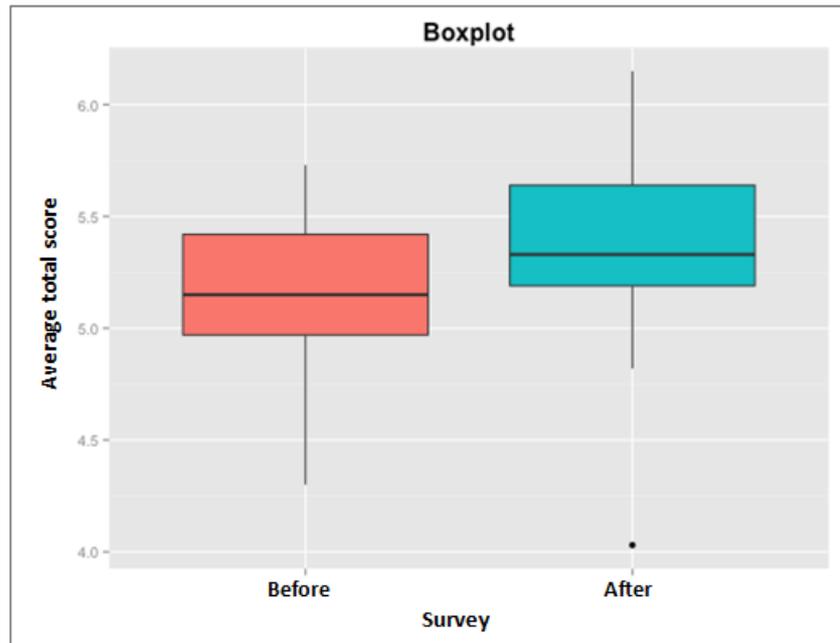


Figure 1: Boxpot of the average self-assessment scores before and after the course

As it is insightful to look at the opportunities presented by using a RL tool to assess the effectiveness of an educational learning experience, a summary of the learning gained from the RL-based survey follows. The results show that gains in competency are particularly pronounced in the dimensions of ethics and values, stakeholder relations and change and innovation. Moreover, students have progressed significantly in all three domains of action (knowing, doing, being), albeit not to the same degree in each of the competency dimensions. Table 15 provides an overview of the competency gains by dimension and by differentiating the statistical relevance by dividing the p-value results into two separate groups of significance (X = $p < 0.05$, and Y = $p < 0.01$), the later thus showing a very strong statistical relevance of the results as compared to only a strong statistical relevance of the results of the former. Negative Change (NC): These items relate to students judging their competency as lower than at the beginning of the course. Such awareness can be explained through an increasing

understanding in the course about a competency resulting in the self-assessment: “Oh, maybe I didn’t know as much as I thought about this particular competency”.

	Knowledge	Skills	Attitudes	Total
Stakeholder relations		Y	X	Y
Ethics and values		Y	Y	Y
Self-awareness	X	NC		
Systems thinking	Y	NC		
Change & innovation	X		X	X

Table 15: Overview of competency gains in the Responsible Leadership Grid of Liechti (2014)

Table 16 offers a summative view of the most significant competency gains when comparing the before and after self-evaluations of those aspects with a very strong statistical relevance (p-value <0.01 only). Six aspects emerge as particularly important (in order of size of difference), covering all domains of action (knowing, doing, being) as well as most competency dimensions (with the exception of change and innovation):

Competency aspect	Competency dimension	Domain of Action	Before (avg. value)	After (avg. value)	Difference	p-value
Initiating and moderating a dialogue	Stakeholder relations	Skills	4.36	5.18	0.82 (19%)	0.0001
Critically questioning and adapting one’s own values	Ethics and values	Skills	3.73	4.39	0.67 (18%)	0.0095
Understanding interdependencies, functioning & connections of systems	Systems thinking	Knowledge	5.39	6.15	0.76 (14%)	0.0016
Including ethical aspects in decisions	Ethics and values	Skills	4.82	5.45	0.64 (13%)	0.0055
Feeling responsible towards sustainable development	Ethics and values	Attitude	5.18	5.70	0.52 (10%)	0.0047
Knowing oneself, one’s emotions, interests and needs	Self-awareness	Knowledge	5.27	5.79	0.52 (10%)	0.0014

Table 16: Detailed overview of competency gains in the Responsible Leadership Grid of Liechti (2014)

In summary, the prototype that operationalized the RL definition has proven very useful and insightful in assessing responsible leadership competencies in an educational practice setting. It is encouraging

to see that the prototype approach has provoked such considerations and has allowed opening the research field more widely.

2. Testing the usability of the RL Grid for business

A practice application was used to clarify and improve the prototype. A leading Swiss telecom provider wanted to know how their managers self-assessed their responsible leadership competencies. The company had a desire in particular to a) undertake a RL-related self-assessment of its management and b) assess their existing leadership development programs and trainings in view of their RL impact. The organization had previously undergone an internal process to define what RL meant and had subsequently engaged with Business School Lausanne to assess their findings. The prototype was translated into a company internal survey tool to be used by a representative sample (n=89) of their three management levels (Zoppi, 2016). The survey triggered the identification of three competency areas as “blind-spots” areas, which were underdeveloped. The RL Grid with its 15 aspects and 45 sub-competencies proved an insightful tool for the company and its concern with analyzing and developing specific RL competencies. In addition, the RL Grid helped the company to display their existing training offers in a clear way that highlighted overlaps and gaps. Based on a number of follow-on interviews allowed the company to translate the identified blind spots into actions to be added to their training and development priorities (Zoppi, 2016).

3. Expert review of the learnings and insights

A group of experts of Responsible Leadership scholars from theory and practice as well as HR representatives of the involved company met to discuss the outcome of the responsible leadership assessment in the company, in the context of corporate responsibility and business sustainability. The experts reviewed previous prototyping steps in an attempt to triangulate learnings around the RL prototype. These insights as well as the interconnection with business sustainability and its transformative common space are reflected in a conceptual article on the topic (Muff, 2016).

4. Beta-testing of the online tool for calibration

The Beta-test sample of 102 participants served to calibrate the social desirability factor using the association strength of the responses with the question at +0.7. Responses that occurred with an association strength of +0.7 and higher were considered as “completed”, lower results were rejected due to the risk of social desirability. The Beta-test furthermore served to refine the response coding per competency sub-dimension. A completed answer resulted in one point in a given dimension. As each of the 15 competency areas consisted of three aspects, three correct answers result in a green code (or 3 points), two in a yellow (or 2 points) and one in an orange code (or 1 point). No correct answers resulted in a red code (or zero points).

The calibration procedure has enabled us to verify the scale to attribute to the various competency level in each of the 15 competency areas, by assigning the value 1 to zero of the three elements acquired, the value 2 for having one of the three elements acquired, value 3 for two and value 4 for all three competencies acquired and developed (see Figure 2). The maximum value for all 15 competency areas would thus 15 times 4 equals 60.

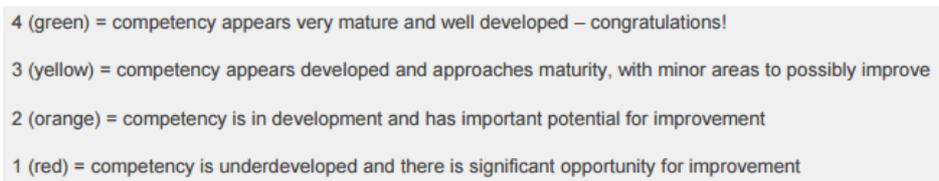


Figure 2: Responsible Leadership Competencies mastery levels from 1 to 4

We adjusted the three action domains in order to weight the varying difficulties in obtaining the different domains of action. Using a scale of 100%, we attributed 25% to “knowledge”, 33% to “skills” and 42% to “attitude. Or, expressed differently, “knowledge” is weighted at 60% of “attitude” and “skills” is weighted at 80% of “attitude”. Using this action domains scale, we translate the original competency areas value of 60 into a scale 100 points, thus weighting the five competency areas of “knowledge” with a factor of 1.25, the five competency areas of “skills” with a factor of 1.25 and the five competency areas with a factor of 2.1 (see Table 17).

COMPETENCIES	Knowing	Doing	Being		DOMAINS WEIGHT	Knowing	Doing	Being
Mature	4	4	4		Stakeholder relations	1.25	1.65	2.10
Developed	3	3	3		Ethics & values	1.25	1.65	2.10
In development	2	2	2		Self-awareness	1.25	1.65	2.10
Underdeveloped	1	1	1		Systems thinking	1.25	1.65	2.10
Missing	0	0	0		Change & innovation	1.25	1.65	2.10
60	20	20	20		25.00	6.25	8.25	10.50
100.0	25.0	33.0	42.0					
	1.25	1.65	2.1					
	60%	79%	100%					

Table 17: Competency areas and action domains scaling overview

These calibrations and adjustments allow generating an overall score for the competencies of responsible leadership on a scale of 0 to 100. This provides a sample with an overall sense of where he is at a given point. Furthermore, we are providing insight into how a sample is doing as compared to the maximum value for the five competency dimensions and the three action domains (see Table 18).

BEFORE (scaled)	Knowing	Doing	Being	Total		
Stakeholder relations	3	5	4	12	58%	20
Ethics & values	4	5	4	13	65%	20
Self-awareness	5	3	4	13	63%	20
Systems thinking	4	3	6	13	67%	20
Change & innovation	4	7	4	15	73%	20
	19	23	23	65	score	
	25	33	42	100	max	
	75%	70%	55%	65	of 100	

Table 18: Example of competency dimensions and action domains assessment against the maximum score

6. Potential applications and use for business and education

This research journey started with three clear demands from practice:

- Determining the current state of RL competencies - for an individual or for a group;
- Assessing the short and long-term effectiveness of RL competencies development;
- Evaluating existing training offerings in terms of their RL impact.

Our prototyping suggests that the Competency Assessment for Responsible Leadership (CARL) is an answer to the first two points a) and b).

A) Determining the degree and extent of existing responsible leadership competencies for an individual and for a group

To date, several hundred of individual users have used the online assessment to determine their personal responsible leadership competencies. The online survey tool generates automatically a free personal profile with an overview of those competencies that can still be improved and developed. A person can retake the survey repeatedly and self-assess her improvement over a self-selected period of time. A growing number of institutions of higher education (see point b) have started to use the tool to assess the profile of a group of students as a professor starts a given course.

B) Assessing the short and long-term effectiveness of responsible leadership competencies development

The University of St. Gallen and Business School Lausanne, both in Switzerland, University Louvain in Belgium, IPMI International Business School in Indonesia, South East Asia, Case Western University in the United States and the University Stellenbosch in South Africa, the U and the uses the assessment as a way to:

- Enable their students to self-generate their individual RL profile before and after a course,
- Generate class profiles of courses, programs or entire degrees to assess a group's RL profile and development progress before and after an intervention.

Let us look at the example of a before and after assessment of a recent MBA course conducted at the Catholic University of Louvain in Belgium in Spring 2017. Figure 3 and 4 show how such an evolution might look like for a program comparing the RL competencies of an entire class at the beginning of a program (Figure 3) versus the end of a program (Figure 4). The teaching faculty or the program management can use such information to understand which areas of RL may have been insufficiently addressed during the program and can discuss with the faculty how this might be improved in a next year. We are starting to calibrate the development by assessing the difference of before and after.

Degree of mastery (columns) Competency dimensions (rows)	Knowing (Knowledge)	Doing (Skills)	Being (Attitudes)
Stakeholder relations	2	3	2
Ethics and values	3	3	2
Self-awareness	4	2	2
Systems understanding	3	2	3
Change and innovation	3	4	2

Figure 3: Competency Assessment of Responsible Leader (CARL) – BEFORE a course (100% response rate)

Degree of mastery (columns) Competency dimensions (rows)	Knowing (Knowledge)	Doing (Skills)	Being (Attitudes)
Stakeholder relations	3	2	4
Ethics and values	2	3	2
Self-awareness	4	2	4
Systems understanding	3	2	4
Change and innovation	4	3	3

Figure 4: Competency Assessment of Responsible Leader (CARL) – AFTER a course (80% response rate)

A comparative analysis of the before and after assessments, completed by 10 and 8 participants respectively, allows the participants and lecturer to observe the following developments (see Table 19):

- The course brought an overall increase in responsible leadership competencies of 16%
- The action domain “attitude” (being) was most significantly increased, by 55%
- The most change in the competency dimensions occurred in terms of “stakeholder engagement” and “self-awareness” (33% and 34% respectively)

It might well be interesting to assess what interventions may have contributed to significant positive changes. Participants as well as interveners are excellent sources for finding potential avenues of answers to this question. Given a change in the number of respondents, we suggest not drawing conclusions from variations below 20% change; these may have causes that are beyond the means of analysis available here. We have noted that negative change does not necessarily imply a loss of a competency, but reflects the increase of awareness of a participant as a result of having been exposed to certain concepts, experiences or reflections which may result in participants rating their

knowledge, skills or competencies lower than previously estimated in any given dimension. It is therefore not necessarily appropriate to question too much a reduction of a competency, unless before-after invention show consistency in such data over time.

BEFORE (scaled)	Knowing	Doing	Being	Total			AFTER (scaled)	Knowing	Doing	Being	Total			
Stakeholder relations	3	5	4	12	58%	20	Stakeholder relations	4	3	8	15	77%	20	33%
Ethics & values	4	5	4	13	65%	20	Ethics & values	3	5	4	12	58%	20	-10%
Self-awareness	5	3	4	13	63%	20	Self-awareness	5	3	8	17	84%	20	34%
Systems thinking	4	3	6	13	67%	20	Systems thinking	4	3	8	15	77%	20	16%
Change & innovation	4	7	4	15	73%	20	Change & innovation	5	5	6	16	81%	20	12%
	19	23	23	65		score		20	20	36	76		score	
	25	33	42	100		max		25	33	42	100		max	
	75%	70%	55%	65		of 100		80%	60%	85%	76		of 100	
Degree of change of "after" as compared to "before"								7%	-14%	55%	16%			

Table 19: Before-After Comparison of a sample MBA course

As indicated, pedagogically trained and experienced faculty may be interested to look at a class of students take a 'before-after' assessment, in order to understand blind spots and learning opportunities at the beginning of a course. Such insight may serve as an additional measure to understand the impact of any learning intervention over a given period at the end of the course. Given the current limitations of suggestions provided by the tool in terms of how to improve a current level of responsibility, it is considered premature to share course-based surveys with faculty that is not specifically trained in understanding the impact of a pre-assessment of a class prior to teaching. It has been suggested that such pre-assessments highly influence a teacher (positively and negatively) and it remains yet to be better understood how we can set up this survey to limit unintended negative consequences of such sharing of data at a course level.

C) Evaluating a broad range of existing training offerings in terms of responsible leadership impact

The experience with the Swisscom company case has shown that by using the RL Grid, the human resources team was able to assess the effectiveness of their large training and development offer in accordance to the 15 areas identified, allowing them to understand which dimensions were not addressed at all and where they may have overlapping offers that could be optimized in a next phase.

As a result of a number of business schools around the world have started using this assessment, it has been suggested that this online tool might well be way to answer to the question posed by the U.N. Principle of Responsible Management Education (UNPRME), namely to what degree do you actually educate responsible leaders. Business School Lausanne in Switzerland, for instance, has started a survey for all incoming students in all programs (bachelor to doctoral) since September 2016 and has started collecting survey at the end of studies across all these same programs. They are using the CARL in combination with the SuliTest (www.sustainabilitytest.org) as a way to assess progress of students in two dimensions of their vision: responsibility and sustainability. First results to report are anticipated in the coming two years.

7. Conclusions, limitations and further research

This paper demonstrates that the three questions posed by Managers can indeed be answered:

- a) The Competency Assessment of Responsible Leadership (CARL) provides a pragmatic and rapid way to determine the state of existing RL competencies of individuals and groups;
- b) The Competency Assessment of Responsible Leadership (CARL) assesses the short and long-term effectiveness of dedicated leadership development for a team, division or entire company; and also for a single class, course, or entire program;
- c) The Responsible Leadership Grid (RL Grid) with its 15 areas provides a pragmatic way of evaluating existing training offerings in terms of RL impact.

Future data that will be compiled with the current and future use of the online tool CARL will allow the further refinement and development of how we best define Responsible Leadership. The tool will generate insight into which of the dimensions are most challenging to develop and which may actually decrease once a participant gains awareness of a given dimension (as is shown in Section 6 in the area of knowledge). Data collected will support further research that will allow a refinement and improvement of the tools and its applications. The current simplistic recommendations that the online tool automatically generates to every user and group can and must be further developed once

sufficient data is available. The same applies to the initial attempt of quantifying the progress as outlined in section 6.

Limitations of this paper include the explorative nature of the approach taken in this paper. The comparative research and the subsequent prototyping in education and practice are solid in their methods as far as such methods may generate solid approaches. While a majority of the survey questions of the online tool have been tested in similar situations, the tool itself does need further practice tests that can only be provided with the usage of the tool. It is important to analyze the effectiveness of the tool once sufficient additional data has been generated.

CARL serves as a database to enrich the current discourse of RL with real-life data that is sought to further advance the related discussion. Thanks to all current and future users and to all those colleagues active in further advancing responsible leadership on an individual, an organizational and a societal level.

Figures & Tables

Table 1: Overview of key responsible leadership competencies from the literature review

Table 2: Responsible Leadership Grid (Liechti, 2014)

Table 3: Sub-competencies and their sources in the stakeholder relations dimension

Table 4: Sub-competencies and their sources in the ethics & values dimension

Table 5: Sub-competencies and their sources in the self-awareness dimension

Table 6: Sub-competencies and their sources in the systems thinking dimension

Table 7: Sub-competencies and their sources in the change & innovation dimension Table 8: Responsible Leadership Grid consisting of 45 sub-competencies (Muff 2016)

Table 9: Summary overview of sources for survey questions

Table 10: Overview of CARL online survey questions for stakeholder relations

Table 11: Overview of CARL online survey questions for ethics and values dimension

Table 12: Overview of CARL online survey questions for the self-awareness dimension

Table 13: Overview of CARL online survey questions for the systems thinking dimension

Table 14: Overview of CARL online survey questions for the change & innovation dimension

Table 15: Overview of competency gains in the Responsible Leadership Grid of Liechti (2014)

Table 16: Detailed overview of competency gains in the Responsible Leadership Grid of Liechti (2014)

Table 17: Competency areas and action domains scaling overview

Table 18: Example of competency dimensions and action domains assessment against the maximum score

Table 19: Before-After Comparison of a sample MBA course

Figure 1: Boxplot of the average self-assessment scores before and after the course

Figure 2: Responsible Leadership Competencies mastery levels from 1 to 4

Figure 3: Competency Assessment of Responsible Leader (CARL) – BEFORE a course (100% response rate) – **TO BE PRINTED IN COLOR**

Figure 4: Competency Assessment of Responsible Leader (CARL) – AFTER a course (41% response rate) – **TO BE PRINTED IN COLOR**

Appendix 1: Overview of 45 RL sub-competencies as compared to potential response-time survey questions

Bibliography

Brown, M., Trevino, L. & Harrison, D. (2005). Ethical leadership: A social learning perspective for construct development and testing. *Organizational Behaviour & Human Decision Processes*, 97(2), 117–134.

CARL-website: the Competency Assessment of Responsible Leadership, last accessed March 6th, 2017 on <http://www.bsl-lausanne.ch/thought-leadership/competency-assessment-of-responsible-leadership-carl/>

Dassah, M. (2010). Responsible Leaders: Attributes and Roles in a Multi-challenged Global Business Environment and Implications for Leadership Development. In Centre for Responsible Leadership (Ed.), *The Next Generation Responsible Leaders* (p. 30–37). Accessed June 1, 2014 on http://web.up.ac.za/sitefiles/file/40/1055/10099/EMS%20May_CRL_ConfProcWeb.pdf

Datar, S.M., Garvin, D.A., and Cullen, P.G. (2010). *Rethinking the MBA. Business education at the crossroads*. Boston, Harvard Business Press.

Doh, J. and Stumpf, S. (2005). Towards a framework of responsible leadership and governance. In J. Doh & S. Stumpf (Eds.), *Handbook on Responsible Leadership and Governance in Global Business* (p. 3–18). Cheltenham: Edward Elgar.

Dougan, J. (2006). *SRLS-Rev 2: The second revision of SRLS*. College Park, MD: National Clearinghouse for Leadership Programs.

Dyllick, T. and Muff, K. (2014). *Students leading laboratories: University of St. Gallen*. In Muff, K. (ed.). *The Collaboratory*. Sheffield: Greenleaf Publishing.

Euler, D. & Hahn A. (2007). *Wirtschaftsdidaktik*. 2nd edition. Bern: Haupt.

GRLI. (2005). *Globally Responsible Leadership: A Call for Engagement*. Accessed June 1, 2014 on http://www.grli.org/images/stories/grli/documents/globally_responsible_leadership_report.pdf

GRLI. (2008). *The Globally Responsible Leader: A Call for Action*. Accessed June 1, 2014 on http://www.grli.org/images/stories/grli/documents/Manifesto_GLOBAL.pdf

Hmelo-Silver, C. E., Duncan, R. G. & Chinn, C. A. (2007). Scaffolding and achievement in problem-based and inquiry learning: A response to Kirschner, Sweller and Clark. *Educational Psychologist*, 42(2), 99-107.

Hosenfeld, A. (2010). *Führt Unterrichtsrückmeldung zu Unterrichtsentwicklung?* Münster: Waxman.

Kotrubicz, H. (2008). Fragebogen zur Selbsteinschätzung der Kompetenzen im beruflichen Kontext [electronic version]. Unpublished bachelorstudy, Zürcher Hochschule für Angewandte Wissenschaften. Accessed on March 12, 2016 at http://www.zhaw.ch/fileadmin/user_upload/psychologie/Downloads/Bibliothek/Arbeiten/BA/ba0024.pdf

Liechti, A. (2014). *Collaboratories als wirksame Methode zur Ausbildung von verantwortungsvollen Führungskräften?* Master's Thesis at University of St. Gallen. Retrieved on 22 November, 2016, from: http://www.nachhaltigkeit.unisg.ch/~media/internet/content/dateien/instituteundcenters/nh/masterarbeit_anna%20liechti_08606733.pdf?fl=de

Maak, T. (2007). Responsible leadership, stakeholder engagement, and the emergence of social capital. *Journal of Business Ethics*, 74, 329–343.

Maak, T. & Pless, N. (2006a). Introduction: The quest for responsible leadership in business. In T. Maak & N. M. Pless (Eds.), *Responsible Leadership* (p. 1–13). New York: Routledge.

Maak, T. & Pless, N. (2006b). Responsible leadership: A relational approach. In T. Maak & N. Pless (Eds.), *Responsible Leadership* (p. 33–53). New York: Routledge.

Manfred F. R., De Vries, K, (2005). *Global Executive Leadership Inventory (GELI), Facilitator's Guide Set*. Hoboken NJ: Pfeiffer.

Marquardt, M. & Berger, N. (2000). *Global Leaders for the 21st Century*. Albany: State University of New York Press.

Mirvis, P., DeJongh, D., Googins, B., Quinn, L. & Van Velsor, E. (2010). *Responsible Leadership Emerging: Individual, Organizational, and Collective Frontiers*. Accessed June 1, 2014 on <http://web.up.ac.za/sitefiles/file/2013%20ALCRL%20Position%20paper.pdf>

Muff, K. (2012). Are business schools doing their job? *Journal of Management Development*, 31 (7), 648–662.

Muff, K. (2013). Developing globally responsible leaders in business schools: A vision and transformational practice for the journey ahead. *Journal of Management Development*, 32(5), 487–507.

Muff, K., Dyllick, T., Drewell, M., North, J., Shrivastava, P. & Haertle, J. (2013). *Management Education for the World - A Vision for Business Schools Serving People and Planet*. Cheltenham: Edward Elgar.

Muff, K., Mayenfisch-Tobin M., (2014). The right attitude as a key hiring criterion for graduate students in Switzerland. *Psychosociological Issues in Human Resource Management* (2-2), 43–55.

Muff, K. (2016). The Collaboratory: A Common Transformative Space for Individual, Organizational and Societal Transformation. *Journal Corporate Citizenship*. 18(2), 91-108.

Kotrubicz, H. (2008). *Fragebogen zur Selbsteinschätzung der Kompetenzen im beruflichen Kontext* [Elektronische Version]. Unveröffentlichte Bachelorarbeit, Zürcher Hochschule für Angewandte Wissenschaften. Accessed on March 3, 2014 http://www.zhaw.ch/fileadmin/user_upload/psychologie/Downloads/Bibliothek/Arbeiten/BA/ba0024.pdf

- Pless, N. (2007). Understanding responsible leadership: role identity and motivational drivers. *Journal of Business Ethics*, 74, 437–456.
- Pless, N. & Maak, T. (2011). Responsible Leadership: Pathways to the Future. *Journal of Business Ethics*, 98, 3–13.
- Pless, N. & Schneider, R. (2006). Towards developing responsible global leaders: The Ulysses experience. In T. Maak & N. Pless (Eds.), *Responsible Leadership* (p. 213–226). Abingdon: Routledge.
- Quinn, L. & D'Amato, A. (2008). *Globally Responsible Leadership: A Leading Edge Conversation*. Accessed June 1, 2014 on <http://www.ccl.org/leadership/pdf/research/globallyResponsibleLeadership.pdf>
- Scherhorn, G., Haas, H., Hellenthal, F. & Seibold, S. (2012a). Naturverträglichkeit. In A. Glöckner-Rist (Hrsg.), *Zusammenstellung sozialwissenschaftlicher Items und Skalen. ZIS Version 15.00*. Bonn: GESIS.
- Scalberg, E. (2005). Responsible leadership and governance in global business: the role of education. In J. Doh & S. Stumpf (Eds.), *Handbook on Responsible Leadership and Governance in Global Business* (p. 380–389). Cheltenham: Edward Edgar.
- Schraa-Liu, T. & Trompenaars, F. (2006). Towards responsible leadership through reconciling dilemmas. In T. Maak & N. Pless (Eds.), *Responsible Leadership* (p. 138-154). New York: Routledge.
- Sterling, S. & Thomas, I. (2006). Education for sustainability: the role of capabilities in guiding university curricula. *International Journal of Innovation and Sustainable Development*, 1(4), 349–370.
- Svanström, M., Lozano-García, F. & Rowe, D. (2008). Learning outcomes for sustainable development in higher education. *International Journal of Sustainability in Higher Education*, 9(3), 339–351.
- Vögtlin, C. (2011a). Development of a Scale Measuring Discursive Responsible Leadership. *Journal of Business Ethics*, 98, 57–73.
- Vögtlin, C. (2011b). *Verantwortungsvolle Führung im Kontext der Globalisierung: Konzeptionalisierung und Operationalisierung eines erweiterten Führungsverständnisses*. Dissertation, Universität Zürich. Berlin: Patzer.
- Wade, M. (2006). Developing leaders for sustainable business. In T. Maak & N. Pless (Eds.), *Responsible Leadership* (p. 227–244). New York: Routledge.
- Waldman, D. (2011). Moving forward with the concept of responsible leadership: Three caveats to guide theory and research. *Journal of Business Ethics*, 98, 75-83.
- Wiek, A., Withycombe, L. & Redman, C. (2011). Key competencies in sustainability: a reference framework for academic program development. *Sustainability Science*, 6(2), 203–218.
- Wulf, W. (1993). The collaborative opportunity. *Science*. 261(5123): 854-855.
- Zoppi (2016). *Responsible Leadership @ Swisscom*. A Masterstudy conducted at the Institute of Applied Psychology at the Applied Sciences University North-West Switzerland. Thesis is under lock due to confidentiality agreement with Swisscom.

Appendix 1: Overview of 45 RL sub-competencies as compared to the response-time survey questions

No.	Competency	Mastery	Attribute	Hexaxo Personality	Dark Triad	Playfulness	Global Preferences	Total
1	Stakeholder relations	Knowledge (knowing)	•Methods to identify & integrate legitimate stakeholder groups	2	0	0	0	2
2	Stakeholder relations	Knowledge (knowing)	•Seeing conflict as a foundation for creativity	5	0	0	0	5
3	Stakeholder relations	Knowledge (knowing)	•Dealing with conflicting interests of stakeholders	1	3	0	0	4
4	Stakeholder relations	Skills (doing)	•Initiating and moderating a dialogue	0	2	0	0	2
5	Stakeholder relations	Skills (doing)	•Respecting different interests to find a consensus	3	0	1	0	4
6	Stakeholder relations	Skills (doing)	•Developing long-term relationships	0	0	1	0	1
7	Stakeholder relations	Attitude (being)	•Being empathic with a desire to help others	1	0	1	2	4
8	Stakeholder relations	Attitude (being)	•Being open & trustworthy	1	0	0	1	2
9	Stakeholder relations	Attitude (being)	•Appreciating the positive in diversity	2	0	3	1	6
10	Ethics & values	Knowledge (knowing)	•Knowing what is right and wrong	2	4	0	0	6
11	Ethics & values	Knowledge (knowing)	•Knowing your own values	0	0	0	0	0
12	Ethics & values	Knowledge (knowing)	•Understanding dilemmas	0	2	0	0	2
13	Ethics & values	Skills (doing)	•Critically questioning and adapting values	1	2	0	1	4
14	Ethics & values	Skills (doing)	•Acting according to ethics and own values	2	0	0	1	3
15	Ethics & values	Skills (doing)	•Being a role model	2	0	2	0	4
16	Ethics & values	Attitude (being)	•Being honest and integer	2	3	0	0	5
17	Ethics & values	Attitude (being)	•Seeking fairness	1	0	0	2	3
18	Ethics & values	Attitude (being)	•Being responsible towards society and sustainability	0	0	0	3	3
19	Self-awareness	Knowledge (knowing)	•Understanding the importance of reflection in the learning process	0	0	0	0	0
20	Self-awareness	Knowledge (knowing)	•Knowing oneself	0	3	1	1	5
21	Self-awareness	Knowledge (knowing)	•Understanding one's own strengths and weaknesses	5	0	0	0	5
22	Self-awareness	Skills (doing)	•Learning from mistakes	0	0	0	0	0
23	Self-awareness	Skills (doing)	•Reflecting on one's behavior, mental models & emotions	0	0	0	3	3
24	Self-awareness	Skills (doing)	•Adapting the communication style	0	0	1	0	1
25	Self-awareness	Attitude (being)	•Reflecting about oneself	1	2	1	0	4
26	Self-awareness	Attitude (being)	•Reflecting about one's own behavior	2	2	0	0	4
27	Self-awareness	Attitude (being)	•Sharing one's developmental challenges.	1	0	1	0	2

No.	Competency	Mastery	Attribute	Hexaxo Personality	Dark Triad	Playfulness	Global Preferences	Total
28	Systems thinking	Knowledge (knowing)	•Understanding how the systems works	0	1	0	0	1
29	Systems thinking	Knowledge (knowing)	•Understanding inter-dependencies & inter-connections of systems	0	0	2	1	3
30	Systems thinking	Knowledge (knowing)	•Understanding sustainability challenges and opportunities	0	0	0	1	1
31	Systems thinking	Skills (doing)	•Dealing with complexity and ambiguity	3	1	2	1	7
32	Systems thinking	Skills (doing)	•Estimating consequences of decisions on the system	1	0	1	0	2
33	Systems thinking	Skills (doing)	•Seeing the big picture and the connections rather than the parts	0	0	0	0	0
34	Systems thinking	Attitude (being)	•Working across disciplines & boundaries	0	2	0	0	2
35	Systems thinking	Attitude (being)	•Defending a long-term perspective	0	0	2	0	2
36	Systems thinking	Attitude (being)	•Providing a trans-generational perspective	0	0	0	0	0
37	Change & innovation	Knowledge (knowing)	•Understanding the significance of a motivating vision in change processes	0	0	0	0	0
38	Change & innovation	Knowledge (knowing)	•Understanding the drivers & enablers of innovation & creativity	0	0	0	0	0
39	Change & innovation	Knowledge (knowing)	•Understanding conditions, functioning & dynamics of change processes	0	0	0	0	0
40	Change & innovation	Skills (doing)	•Developing creative ideas	5	0	1	1	7
41	Change & innovation	Skills (doing)	•Acting to bring about change & translating ideas into action	0	0	0	1	1
42	Change & innovation	Skills (doing)	•Questioning the status-quo & identifying steps of change for a sustainable future	2	0	2	0	4
43	Change & innovation	Attitude (being)	•Being open, curious and courageous	5	0	2	1	8
44	Change & innovation	Attitude (being)	•Being flexible and adaptable for change	1	0	4	0	5
45	Change & innovation	Attitude (being)	•Being visionary in finding solutions for society's problems	0	0	0	0	0
				51	27	28	21	127

In grey highlighted, the online survey questions selected for the competencies.

Note: there was no suitable online questions for the dimension “self-awareness”. These were sourced from existing off-line surveys.