Veerkracht

An game for servant-leadership development


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Abstract
Several widely used practices for leadership development, such as formal training and personal reflection, exhibit the weakness of poor learning transfer: sending managers out to a leadership training often leads to disappointing results. In this paper we infer that games that are designed as ‘authentic learning environments’ may improve the learning transfer of leadership development programmes. We identified ten design guidelines for such games and used them to evaluate the game Veerkracht that was developed to train servant leadership at the Dutch national government agency Rijkswaterstaat. We concluded that the game complies with the majority of our guidelines, but it is too early to tell whether it supports a better learning transfer than more traditional training methods. Veerkracht currently undergoes several changes to serve in a future training programme that may yield the required data to draw such conclusions.

1. Introduction
Several widely used practices for leadership development, such as formal training and personal reflection, exhibit the weakness of poor learning transfer: sending managers out to a leadership training often leads to disappointing results (Day and Halpin, 2001). An important reason is that these practices are carried out in more or less decontextualised training environments, i.e., they do not relate to ‘every-day life at the office’ of the trainee. As a result, trainees often have difficulties transferring their learning outcomes from the training environment to their daily working environment.

In a related field of education, viz. on-line learning, Herrington and Oliver (2000) have proposed to employ so-called authentic learning environments (ALEs) to improve learning transfer. ALEs are designed to enable learning experiences with real-world relevance. They have been used at various institutes for higher education (Lombardi, 2007).

The objective of this paper is to show that games may be designed as ALEs for leadership development. We identified guidelines to design games that comply with the characteristics of ALEs as defined by Herrington et al. These guidelines were used to design a game for servant leadership development. Servant leadership is a follower-centred, non-hierarchical type of leadership that focuses on the continuing development of employees. Servant-leaders combine ‘their motivation to lead with a need to serve’ (Van Dierendonck, 2011, p. 1228). The game was used to train a group of professionals from a Dutch national government agency, Rijkswaterstaat. We evaluated to what extent the game complied with our guidelines and reflected on the usefulness of games as ALEs for leadership development.
Below, in the second Section, we elaborate on the current practice of (servant) leadership development and identify points for improvement. Thereafter, in Section three, we provide background on the concept of an ALE and propose our set of guidelines to design ‘authentic games’. Section four describes our leadership development game called Veerkracht. The results of the evaluation of the game can be found in Section five, where we determine to what extent Veerkracht complies with our design guidelines. Finally, conclusions are drawn in Section six and the generalizability of the game is discussed.

2. Servant leadership development
The notions of servant leadership and the servant-leader were first introduced by Robert Greenleaf in an essay from 1970 and later elaborated in a book (Greenleaf, 1977). In this Section we will sketch that many existing approaches to servant leadership development can be improved in terms of either learning transfer or flexibility and efficiency.

In the past four decades, several large and small companies have chosen servant leadership as the preferred style of leading employees in their organisations (cf. McGee-Cooper and Looper, 2001). A servant-leader is a true leader who mostly takes pride in promoting the personal growth of his/her followers rather than exerting power over them. A comprehensive overview of servant leadership may be found in the work of Van Dierendonck (2011). The key servant leadership qualities that we have adopted in our study are: standing back, forgiveness, courage, empowerment, accountability, authenticity, humility and stewardship (Van Dierendonck and Nuijten, 2011).

Several organisations have developed servant leadership development programmes and various authors have written self-help books on the topic. As was pointed out by Day and Halpin (2001) in the case of general leadership development many of these programmes and books have led to disappointing learning transfer: many learners were not able to transfer their lessons learnt to their every-day practice. In contrast, celebrated trainers such as Jim Laub and Ann McGee-Cooper deduce from their practice that ‘building a curriculum of servant leadership tools’ that includes various forms of hands-on learning (e.g., action learning; cf. Marquardt and Freedman, 2009) yields more satisfying results. According to them it is imperative that these curricula are promoted and maintained over longer periods of time. Examples of companies that successfully took such approaches are the US-based TD Industries and Southwest Airlines (McGee-Cooper and Looper, 2001).

Best practices from the world of leadership development, therefore, indicate that elaborate action learning is important to successfully change the leadership culture in an organisation. However, many of the action learning approaches lack the flexibility and efficiency of traditional, classroom-based learning approaches (Day and Halpin, 2001). Therefore, in the remainder of this paper, we will aim to identify and apply training instruments that provide participants of leadership development programmes the best of both worlds: high learning transfer as well as high flexibility and efficiency.

3. Authentic learning environments and games
An ALE as defined by Herrington and Oliver (2000) allows learners to develop competencies in circumstances that constitute or resemble real-world situations dealing with complex problems. Psychologists have argued that executing authentic activities in ALEs improves learning effectiveness (cf. Petraglia, 1998). Below we elaborate on the concept of ALE and propose guidelines for the design of games that comply with the characteristics of ALEs as defined by Herrington et al.
Some of the principles of authentic learning environments date back as far as to the guild system from the Middle Ages when apprentices were educated by master craftsmen in the workplace. In this system, learning-by-doing under close supervision of an expert was the dominant educational method. Due to increased numbers of learners in the centuries that followed, the guild system became impractical. Instead, the education system moved towards large-scale settings in which specialised craftsmen were replaced by generalist teachers who instructed students in classrooms. The dominant educational methods became lecturing and self-study through reading and paper-based exercises. As a result, the education system became more efficient and more accessible to large numbers of learners. However, as a side effect, learners in schools were less likely to encounter real-world situations to which to apply their lessons learnt than apprentices in their masters’ workshops. Learning scientists have come to understand that novices need these encounters to effectively transfer learning results to every day practice (cf. Brown, Collins, and Duguid, 1989). Therefore, educational science now faces the challenge to situate learners in real-world environments while still being practical to accommodate large numbers of learners. Projects, problem-based learning and internships are good examples of solutions to those challenges. With the rise of on-line educational technology, researchers and educators are realising that this challenge can be even more successfully met in more and more cases. An example is the use of on-line, remote, physics experiments organised at the Berlin Institute of Technology (Khachadorian et al., 2011; for a survey of more examples we refer to Lombardi, 2007).

ALEs may also take the shape of a game: games are learner-centred and ask for action learning with authentic tasks in models of real-world situations. Like classroom learning, good games can be designed and adapted to meet the specific wishes of large groups of learners. Also, they encourage learners to actively explore solutions to problems they face in a model of the real world (Hofstede, De Caluwé, and Peters, 2010). Therefore we find that a game may combine the best of both worlds: flexibility and efficiency of class-room training and the high learning transfer of action learning.

The characteristics of games fit well with the elements of authentic learning according to Carlson (2002) and led Galarneau (2005) to examine games for authentic learning experiences. Below we aim to take a next step and provide guidelines for game design that follow the theory of authentic learning by Herrington, Oliver, and Reeves (2003). Our guidelines follow ten characteristics of authentic activities that are presented in the text box below.
We identified a set of ten design guidelines for games to comply with these characteristics. Each guideline was derived from the characteristic with the same number in the summary above.

1. **Real-world relevance**: the game should be grounded in a model of the specific, real-world circumstances to which the players need to transfer their learning results. Also, the activities of the players have to match their real-world tasks. We emphasise that real-world relevance does not necessarily call for game models that are a one-to-one copy of the real world. Instead, relevance may also be found in abstract models of reality such as game metaphors. What aspects of reality are relevant to the game model should be determined on a case-by-case basis.

2. **Ill-defined problems**: the challenges in the game should be presented in such a way that players will first need to structure and decompose them before they can be tackled.

3. **Substantial duration**: the game should take more than just a few hours to play. Short games, therefore, do not comply with the characteristics, although they may have strong effects such as a ‘pressure cooker’ to accelerate decision making.
4. **Multi-perspective**: the game should enable players to view the subject matter from multiple perspectives. The players should learn to distinguish valuable from less valuable information to use in the game.

5. **Collaboration**: the game should be multiplayer and collaboration should play an important role in playing the game successfully.

6. **Debriefing and reflection**: the game should include a debriefing to allow players to reflect on their individual and group learning.

7. **Interdisciplinary**: the game should present challenges that need an interdisciplinary approach to be solved.

8. **Authentic assessment**: the scoring mechanism in the game should be grounded in the game play. Only those activities that will lead to rewards in the real situation should lead to high scores in the game.

9. **Finished products**: the aim in the game should be to deliver finished products that are valuable in the modelled game world and may be easily translated to valuable products in the real world.

10. **No single right outcome**: the game should leave room for multiple outcomes that may be reached in different ways.

We remark that many of the guidelines presented above are not new. Many games researchers have emphasised, for instance, the importance of debriefing (cf. Kriz, 2010). Also, we propose that the degree to which games comply with Herrington et al.’s characteristics may be increased or decreased by applying more or fewer of the guidelines above. Game designs in which just a few of the guidelines have been applied may still yield good games in terms of, for instance, game structure, player autonomy, etc. However, we expect that the more guidelines are applied, the more the game will support its players to transfer learning results to their real-world situation.

To summarise this section, we observed that ALEs provide certain advantages over decontextualised classroom teaching and training: especially learning transfer is better supported in ALEs. Also, we have proposed guidelines to design games according to the theory on authentic learning by Herrington et al. We propose that following these guidelines will lead to games that optimally support learning transfer. Below we describe a new game to train leadership competencies and evaluate to what extent it complies with our guidelines.

### 4. The Veerkracht game

The Dutch government agency *Rijkswaterstaat* is responsible for the design, construction, management and maintenance of the main infrastructure facilities in the Netherlands. Since *Rijkswaterstaat* is currently going through organisational, financial and cultural changes. The organisation requested the development of a game on leadership in a changing organisation. According to our knowledge no game about servant leadership already exist, therefore we had to develop a game from scratch. The objective was to develop a game environment in which staff at different levels of management could practice servant leadership. The game *Veerkracht* was developed by researchers and game designers of Delft University of Technology in close cooperation with *Rijkswaterstaat* and a servant leadership specialist from the Rotterdam School of Management (all in the Netherlands).

**Game context**

The game is played in the context of a fictitious organisation that resembles the actual organisation, but on a smaller scale. The fictitious organisation is called *Klein Waterstaat*.
(Small *Rijkswaterstaat*) and it is responsible for the construction and management of the waterways and roads in *Klein Nederland* (Small Netherlands). The organisation is faced with a number of problems: first, the political perception of the organisation is that it is fragmented; second, the market has indicated that the organisation does not speak with one voice, and, third, the public complains that too much tax payers’ money goes to the organisation. *Klein Waterstaat* has to take on the challenge of addressing the complex societal issues related to infrastructure and the environment in an organisation that has to cut the budget. In order to be able to carry out their tasks and responsibilities in a better and more efficient manner in the coming years, a number of organisational changes have been initiated by the board of directors. All management staff are asked to direct the organisation in the desired direction. The main direction of the changes is known, but not all details are clear and the changes still have to be implemented in the organisation.

*Players and non-player characters*

The game was designed for 21 players that are each assigned different management roles in this fictitious organisation. It distinguishes 16 low-level ‘operational managers’, four intermediate-level ‘section managers’, and one high-level ‘general manager’. The general manager supervises the four section managers and each of the four section managers supervises four operational managers. All operational managers supervise a ‘virtual workforce’: computer-based, non-player characters that execute projects and other tasks in the organisation.

*Objectives in the game*

The objectives in the game are twofold: to reach the production targets related to the construction and management of roads and waterways and at the same time to implement the required organisational changes. Each manager has a budget and has to complete the activities belonging to his/her team on time and on budget whilst keeping his/her (virtual) subordinates satisfied. At the end of the game, the organisational changes have to be implemented completely. The participants are asked to reach these two objectives whilst practicing their leadership skills.

*Production targets*

Every team has a production target consisting of activities that need to be executed during the course of the game. At the start of the game, each player is handed a tablet computer on which his/her activities are shown with the number of resources (still) needed to complete each activity. The activities can be process-based (such as the inspection of motorways) or project-based (such as constructing a lock in a waterway). The tablet also shows each project’s deadline by which it has to be completed. Some of the projects are part of a larger, overarching project from the national infrastructure agenda (such as improving the coastal defence against flooding). These projects need to be carried out by different teams in a specific order: consecutive teams can only start once the preceding team has finished its part. Each player can monitor his/her activities through a number of key performance indicators shown on his/her tablet PC. The progress in the overarching projects is shown to all participants on a large screen (see Figure 1, on the right). This screen also shows the overall budget and progress figures as well as the overall satisfaction of the virtual workforce (left). The way in which the activities are carried out during the game and the way of working with the virtual workforce will be explained below.
Organisational change
In addition to being responsible for the overall operational production, the general manager is assigned the task of restructuring the organisation. At the start of the game, the general manager is handed an organisation chart of the existing and future situation. In the new organisation chart two positions are missing when compared to the old chart. Also the new organisation structure is very different from the old one. The general manager is also given a step-by-step guide to prepare the organisational change, which he/she may use if desired. The general manager is free to call meetings at any time with her/his section managers and/or operational managers to prepare and implement the organisational change.

Game environment, hardware and software
All players are seated at tables in a shared open space. On the walls organisation charts are displayed as well as a projection of the screen shown in Figure 1. Players are free to rearrange the room as required. All players receive a tablet PC with in-house developed software. The tablet can be seen as their virtual office containing four compartments: a library of background documents, a feedback tool, a screen for interaction with the virtual workforce, and a survey of relevant key performance indicators to monitor performance. Each will be discussed below.

The library of background documents contains information on the virtual organisation *Klein Waterstaat*, role descriptions, game rules, etc. The feedback tool allows players to provide feedback to other players on their leadership style. The interaction screen shown in
Figure 2 allows operational managers to interact with their virtual workforce who are represented by a number of ‘business cards’.

![Figure 2 Screen for interaction with the virtual workforce. Shown are the player’s activities (left) and business cards of the virtual workforce (right).](image)

In the screen a list of activities under the responsibility of this player is shown on the left and the business cards of his/her virtual workforce is shown on the right. Players can assign virtual workforce members to activities by dragging the business card of the relevant member onto the activity. Assigning a workforce member to an activity means that human resources become available for the activity and the activity will make progress. When the virtual workforce have a low satisfaction, the player can use the tablet to enquire about the reason for this. By double-tapping on the business card, a new screen appears which states the reason for this (e.g., work overload). The player can choose to interact with the virtual player and improve its satisfaction by selecting a measure from a list of predefined measures. The tablet can also be used to exchange virtual workforce with other teams or sections. The section managers and the general manager do not supervise virtual teams, so they cannot manipulate the virtual staff members directly themselves. The fourth compartment in the virtual office on the tablet is the survey of relevant indicators to monitor performance. It shows historical information on teams’ budgets, progress, and the satisfaction of the virtual workforce (see Figure 3).
Figure 3 displays a survey of relevant indicators in the virtual office on the tablet PC. The screen shows historical information on teams’ budgets, progress, and virtual workforce satisfaction.

Pre-game enquiries
A number of weeks prior to the game, the participants are asked to complete a questionnaire and to request at least five of their subordinates to complete another questionnaire. We developed both questionnaires to enquire about the (servant) leadership characteristics of the game participants and how their subordinates preferred them to act as leaders. One week ahead of the game the participants are sent a feedback report containing the outcomes of the enquiry: a personal leadership profile and their subordinates’ leadership preferences. Based on those the participants are required to formulate their personal learning goals for the training.

Setup of the training
The training programme consists of a 1-day game session which starts with participants sharing their personal learning goals with other participants. These goals may be related to the characteristics of servant leadership such as practicing humility or empowerment of employees (see the list in section 2). Thereafter, the players are briefed about the game and engage in two rounds of game play. Each round lasts about two hours and is concluded by a feedback moment and a short reflection session. During the first round the aim for the players is to familiarise oneself with the production activities and to understand the challenge of the reorganisation. By the end of the round, the participants use their tablet PCs to provide feedback to other players on their leadership behaviour. This procedure follows the same leadership measurement scales as in the pre-game enquiry. During the reflection session that follows the participants are asked to discuss with others what they plan to do differently in the second part of the game in order to reach the in-game targets as well as to work on their personal learning goals. In between the two game rounds participants can discuss their leadership profiles and learning goals over lunch with one of the trainers in person. In the second game round the participants continue working on their production and reorganisation targets after which a second feedback and reflection round is held. After dinner a plenary
debriefing session is held in which the results of the group reflections are shared. The day is concluded by a plenary discussion on servant leadership in the organisation. For this a set of aggregated leadership profiles are compiled based on the in-game player feedback and the pre-game enquiries. The discussion may yield interesting insights into the state of the organisation and the challenges it faces concerning the upcoming changes in the organisation and its leadership culture.

5. Results
We evaluated to what extent the game *Veerkracht* complied with our design guidelines identified in Section three. The following complementary data collection methods were used:

- Observations during the game: concerning the way in which the game is played, how the players organise themselves, and what type of leadership was used.
- Group discussions at the end of the game: on the experiences in the game, the lessons for the situation in reality and the relevant knowledge-based questions about servant leadership.
- Questionnaire after the game: on the impression that the players have of the quality of the game, and the manner in which they could practice servant leadership.

5.1 Background of the participants
On 20 April 2012, the first game play session of *Veerkracht* was played in Delft, NL. A total of 20 participants attended the session. The group consisted of 17 men and 3 women and the average age was 48 (± 8) years. The participants came from different departments in the organisation, such as HRM, motorway maintenance, and finance. A variety of management functions was present, from team leaders to directors. After a reminder had been sent out, 13 participants completed the post-game questionnaire (65% response rate).

5.2 Authentic learning environment
To answer the question to what extent *Veerkracht* can be considered as an ALE we compared the ten guidelines from Section three with our observations and experiences.

Real-world relevance
The reactions from some of the players and also from representatives of our client showed that the game environment bore relevance to the real world. For instance, in the post-game questionnaire, a participant mentioned “the *Rijkswaterstaat* context has been captured well in the game”. However, other players thought the game was “not realistic”. The results from the survey support this (see Table 1). On average, the participants more agree than disagree that the game was sufficiently detailed and realistic.

<table>
<thead>
<tr>
<th>Question from post-game questionnaire</th>
<th>N</th>
<th>Mean</th>
<th>St. dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>Considering its purpose the simulation game was sufficiently detailed</td>
<td>13</td>
<td>3.62</td>
<td>1.121</td>
</tr>
<tr>
<td>Considering its purpose the simulation game was sufficiently realistic</td>
<td>13</td>
<td>3.54</td>
<td>1.121</td>
</tr>
</tbody>
</table>

Table 1 Survey results about detail and realism of the game. The participants could score on a 5-point Likert scale where 1 means totally disagree and 5 means totally agree.

From the discussion and observations it became clear that the game represented many of the real-world mechanics found in the organisation. This became, for instance, clear in the distinction between the production process and the process around the organisational change. These processes were separated by the players and hardly any connection between these two
processes was made. According to the participants, this is also the situation in reality. Part of the organisation actively participates in the change process, while others rather focus on their daily tasks. Also the frustration when projects are behind schedule or that there is a political pressure on a project is comparable with real-world practice.

Looking at the activities of the participants, we observed that the general manager had tasks that highly resembled his tasks in reality, which was confirmed by the player in question. The tasks of the section managers were not specified and had to be defined by the players. Although this is often the situation for the middle management, the post-questionnaire revealed that the tasks were insufficiently clear. During the game the general manager and the section managers had sufficient possibilities to practice leadership: they had to manage their staff (the section managers and the operational managers, respectively). We observed that they focussed especially on providing information about the organisational change and that these managers had less attention for the production targets.

The operational managers, in contrast, were fully engaged in reaching their production targets. A majority of these players agreed to the position that the game was sufficiently detailed and realistic for its purposes. However, the tasks of the operational managers involved very little interaction with other players and this prevented them from practising leadership in a satisfactory manner. Although they were challenge to manage their virtual workforce, by motivating them or by searching a new challenging position in the organisation, the motivation to do so originated not from a (servant) leadership conviction, but from an urge to reach the production targets. For example, virtual workforce were transferred from one section to another, not to match their backgrounds or desires, but to relieve capacity bottlenecks. During the discussions in the break and at the end of the game, this was also mentioned by the participants. The opportunities for displaying and practising leadership behaviour were limited. Consequently, the feedback tool in the tablet PC was scarcely used because the participants had no input to reflect on each other’s behaviour.

In summary, the results are mixed with respect to real-world relevance. In general, the game environment presents a recognisable picture of the organisation. However, with regard to the activities that are carried out by the players we noticed some differences. The real-world relevance for the strategic manager was well designed; for the section managers the tasks needed to be more clearly defined; and for the operational managers the opportunity to display and practise leadership behaviour needs to be improved.

**Ill-defined problems**

The second characteristic is related to the problem presented to the players. Our guideline prescribes to present so-called ill-defined problems. In the *Veerkracht* game, there are two types of problems. The first is making sure that the production targets are met in time. This problem was mostly not ill-defined. Players can start a production activity straight away and do not have to structure the problem beforehand. However, it can be argued that the overarching projects in the game were ill-defined to a certain degree since coordination was needed to finish these projects in time.

The second problem presented to the players is the organisation change. This was an ill-defined problem: although the general manager received an example on how to approach the change, he had to design the process himself or with his section managers. The steps, milestones, and way of communication all had to be defined by the players.

**Substantial duration**

The *Veerkracht* game took 10 hours including introduction and debriefing. There were opportunities to practice and repeat practice, but the game time was too short to conclude that the game has a substantial duration.
**Multi-perspective**

In the game several roles were designed, each with different objectives in the game. Consequently, each role represented a different perspective in the game. In the debriefing, the players were asked questions about what he/she had done if he/she had been assigned a different role in the game. Based on the feedback we were given, it is not possible to identify if the players were conscious about these different perspectives.

A clearer example of multi-perspective is the distinction between a more hierarchical leadership style and a servant leadership style. The players were asked to practice with these styles and experience the differences in effects: the game allowed the players to view leadership from different perspectives.

**Collaboration**

Veerkracht is a multiplayer game, where the players have a joint objective. Although the tasks are divided, the players have to work together to reach the objectives. There are two clear examples where a lack of collaboration leads to problems. The first are the overarching projects on the infrastructure agenda. These projects consist of different activities divided across different teams. Without clear communication and adjustments about the progress and responsibilities these projects will not be finished in time. During the session, we observed that there was communication between the team managers about these projects, by pointing out to others that a task was finished or by asking and searching for the next task in line.

The second example is the organisational change. In theory, the general manager could himself allocate the people to the new functions. However, it is expected that the people are not satisfied with this. Therefore, the general manager has to collaborate with the other players. This was also the case in the session, where the section managers became responsible for filling in the new sections and talking to their operational managers about their ambitions and wishes. Overall we conclude that the game clearly has the characteristic of collaboration.

**Debriefing and reflection**

The game ends with an extensive debriefing to discuss the dynamics during the game and the experiences of the players. Furthermore, other elements of reflection where designed, such as formulating learning goals in advance of the game session, discussing these goals during the two reflection moments with other players, and receiving feedback from other players and from the facilitators.

Although all these elements had been designed, these were found to be unsatisfactory. According to the post-questionnaire, the participants were not satisfied about the amount of feedback given by the facilitators and the quality of the feedback (see Table 2). Another problem was that there was insufficient information or too few experiences to reflect on the leadership behaviour of the other players. This clearly has to be improved in future development.

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<tr>
<th>Question from post-game questionnaire</th>
<th>N</th>
<th>Mean</th>
<th>St. dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>The trainers provided sufficient personal feedback</td>
<td>13</td>
<td>2.85</td>
<td>1.068</td>
</tr>
<tr>
<td>The quality of the personal feedback by the trainers was good</td>
<td>13</td>
<td>2.91</td>
<td>1.044</td>
</tr>
</tbody>
</table>

Table 2 Survey results about facilitation. The participants could score on a 5-point Likert scale where 1 means totally disagree and 5 means totally agree.
Interdisciplinary
The characteristic of interdisciplinarity is by intention not part of the game. The aim of the game is not to learn to reach production targets or complete an organisational change programme. Instead, the game aims to teach players the differences between leadership styles and how to change one’s own style. Therefore, we did not focus on the interdisciplinary nature of the production or organisational change activities within Rijkswaterstaat.

Authentic assessment
While designing the game several key performance indicators were identified which represent the progress of the production activities and satisfaction of the virtual workforce (see Figure 1). The indicators have been inferred from the indicators in the real Rijkswaterstaat organisation. The players also recognised these indicators as a representation of the feedback they normally receive for which they are held accountable. We conclude that an authentic assessment method has been used in the game.

Finished products
The products in the game are finished infrastructure projects and a finished plan for the organisational change. The players were asked to take responsibility of all activities within these processes and were not asked to contribute a small part. Therefore, we conclude that the game requires its players to produce finished products.

No single right outcome
The last characteristic is the outcome. In an authentic learning environment multiple outcomes have to be possible. In this game multiple outcomes are possible. However, the most variety will be observed in the approach taken to reach the outcomes. The general manager could choose different strategies to organise the organisational change, where he can follow different steps and different leadership styles. This also affects the way section managers communicate with their team managers. Therefore, we confirm that this guideline was also complied with.

Based on the above characteristics, we can conclude that Veerkracht complies with a majority of the guidelines for designing an authentic game. Five characteristics comply fully, four comply partially, and one does not comply at all. According to the theory on authentic learning, this suggests that the game supports learning transfer quite well. At present it is, however, impossible to determine learning transfer due to a lack of data. Future game sessions may provide these data.

Some elements in the game design have to be altered to improve learning transfer even more. These mainly comprise the activities of the operational managers and the individual feedback given to players.

6. Conclusions and discussion
Many of the widely used practices for leadership development, such as formal training or personal reflection, suffer from poor learning transfer. From our study we draw the following conclusions:
- Situating leadership development programmes in authentic learning environments (ALEs) may improve their learning transfer.
- Games may be suitable instruments to develop such ALEs for leadership development: they combine the flexibility and efficiency of classroom learning with the learning transfer properties of action learning.
The characteristics of authentic activities described by Herrington et al. (2003) inspired us to formulate guidelines for the design of games that enable a high learning transfer.

The game Veerkracht, that was developed for servant leadership training, complies with the majority of our guidelines. However, it requires some adaptations before it can be successfully used. At the moment it is too early to say whether the game induces a better learning transfer than traditional training programmes.

The point of departure in this paper was that an ALE improves learning transfer. However, some researchers have found no difference in learning effectiveness when comparing learning in ALEs to learning in more traditional, decontextualised environments (Gulikers, Bastiaens, and Martens, 2005). Others argue that Herrington et al. take a too narrow approach to the concept of authenticity (personal communication). Our research may, therefore, in the long run prove valuable to determine the effectiveness of ALEs and shine light on the prerequisites for the successful use of ALEs.

In several programmes roleplaying is used to improve leadership skills. This type of games is highly regarded as a means to train leadership at the operational level: communicating with subordinates, providing feedback, finding solutions for day-to-day problems. In Veerkracht we aim to incorporate two additional levels, viz. the tactical and strategic level. This entails that Veerkracht allows players to practise leadership behaviour in a more varied way. For instance, in the game the general manager may explore a strategy to empower his staff by assigning them roles in the organisational change process. The game provides feedback on this strategy, e.g., in terms of the degree to which other players feel committed to the change process. This allows the general manager to learn about the strategy that he/she explored. Altogether, we think Veerkracht has a significant added value when compared to leadership development programmes based on roleplaying at the operational level.

It remains to be seen whether all guidelines that we identified in Section three are equally important when designing an authentic game. For instance, we already noticed in Section five that ‘interdisciplinary’ was intentionally not a feature of the game Veerkracht. The reason is that the games’ objective was not to teach production or change management, but rather to provide an authentic background to which players could practise their leadership skills. Therefore, we deemed it unnecessary to require an interdisciplinary approach to executing the game activities. The guideline ‘interdisciplinary’ therefore seemed not as important as, for instance, real-world relevance. Further research should prioritise our guidelines.

Some improvements are still needed to make Veerkracht a successful game for servant leadership development. For a part of the players, viz. the general manager and the section managers, the game provided ample opportunity to practise servant leadership behaviour. However, for the players that had assumed the role of an operational manager, the game provided insufficient training opportunities. These players had too few opportunities to genuinely interact with their virtual workforce. In addition, the game provided too few actions and decision moments for operational managers. Improvements that are currently being made include adding more elements of communications training for operational managers (e.g. presenting the organisational change plans to their teams), and adding tactical and strategic decision taking for operational managers (e.g. recruitment and development of employees, organisation of the team and feedback, etc.). Finally, we plan some improvements in providing the players with feedback on their behaviour. This is partly covered by allowing more interaction between players and stimulating them to provide feedback to each other. For
another part, this will be the task of management trainers who will intervene in the game with small, individual coaching moments.

Once the game has been improved, the game will become part of a training program about leadership. At that moment, we can also evaluate the learning effect and in which way they can implement this in their daily work.

This type of game will not be limited to this particular case. It can prove useful for other large organisations with a hierarchical leadership culture. The production-related aspects in the game can be adapted to fit the specific tasks/projects of another organisation; the organisational change aspect is generic to many large organisations.

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References


