RESEARCH NOTE

Abstract

A key concern in threat assessment is a person's ability to cope with extreme stress. This ability to cope is, in part, about resilience—how a person deals with challenges and recovers from adversity. Researchers created the cooperative card game *Deadlines & Deliverables* to support security efforts by building resilience in the workforce. With an interactive and engaging format, the game simulates real-life situations and challenges employees to work together to overcome them. This Research Note describes the game development process and highlights the empirical evidence on which the game is based.

the **ThreatLab**
Integrating Research Into Practice

The Defense Personnel and Security Research Center (PERSEREC) founded The Threat Lab in 2018 to realize the Department of Defense (DoD) Counter-Insider Threat Program Director's vision to incorporate the social and behavioral sciences into the mission space. Our team is headquartered in Seaside, California, and includes psychologists, sociologists, policy analysts, computer scientists, and other subject matter experts committed to workforce protection.

Deadlines & Deliverables: A Collaborative Game to Build a More Resilient Workforce

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Introduction

A resilient workforce is a critical component of DoD's Counter-Insider Threat Program. Resilient employees exercise positive coping strategies that allow them to adapt and respond to adversity, which contributes both to insider threat prevention and recovery efforts.

Insider threat events result from a variety of factors that combine in different ways. In some cases, daily stressors build over time and become unbearable. In other cases, a single major life event like a divorce or the death of a loved one challenges an employee's ability to cope (Fletcher & Sarkar, 2013). Employees who learn healthy ways to cope with stressors are better prepared to deal with challenges, which benefits both their personal and professional lives (Luthans, Vogelgesang, & Lester, 2006).

Resilience is not a fixed trait. Rather, people build resilience through a dynamic and continuous process in which they experience, manage, and overcome stressors. Resilience enables people to return to an equilibrium or to an original state of balanced mental health while maintaining a focus on "self-care" (Chmitorz, *et al.*, 2018).

The Office of the Under Secretary of Defense for Intelligence and Security asked The Threat Lab to create an engaging, educational, empirically-based tool to teach resilience strategies across diverse organizational settings. In response, researchers created an interactive card game, *Deadlines & Deliverables*, grounded in best practices drawn from psychology and education theory. This Research Note summarizes the components of the game, including the instructional video available on the Center for Development of Security Excellence's (CDSE) YouTube channel, along with the development and production process.

Defining Resilience

Researchers began by reviewing the literature to define and operationalize "resilience." The review uncovered over 50 definitions of resilience pertaining to organizational settings. Researchers consolidated the results of the review and, for the purposes of this project, defined resilience as a dynamic, learnable process of adaptation and recovery from adverse stressful circumstances that results in a greater capacity to handle future stressors.

The literature search also highlighted a number of relevant key phrases and terms that were critical for generating the content of the actual game cards. These phrases included strength-based, self-enhancement, self-care, sustaining well-being, Psychological Capital (PsyCap), self-management, and outcome-oriented approach (Chmitorz, *et al.*, 2018; Grafton, Gillespie, & Henderson, 2010; Luthans, *et al.*, 2006; McLarnon & Rothstein, 2013).

Card Game Content

The resilience literature is multidisciplinary, and researchers identified concepts from a number of fields that could be integrated into the card game content. First, researchers explored positive psychology, an "approach [that] is dedicated to applying sound social-scientific principles to the development of attributes such as resilience and perseverance, responsibility, work ethic, interpersonal skills, future-mindedness, rationality and realism, insight, optimism and hope" to promote the professional development of human assets in the workplace (Shatté, Reivich, & Seligman, 2000, p. 183).

Researchers operationalized the positive psychology concept of PsyCap as the game's currency (*i.e.*, Mental Money). Briefly, PsyCap comprises four constructs. The three proactive constructs of hope, optimism, and confidence/self-efficacy serve as pathways to the fourth, reactive construct of resilience. Resilience is the process that is activated when a person is presented with challenging circumstances (Luthans, *et al.*, 2006). That is, hopeful, optimistic, and confident people will be more resilient than those who do not have these proactive characteristics because they are able to work toward their goals, experience positivity along the way, and believe they will eventually succeed.

Second, researchers explored experiential/active learning principles, which promote the concepts of learning by doing and increasing engagement in order to maximize retention. Experiential learning involves active and reflective processes to learn through an experienced event or situation (Stadsvold, 2020, para. 2). In the case of a card game, participants are encouraged to reflect on learning concepts while playing the game and by engaging in post-game discussion.

Active learning tends to go hand-in-hand with experiential learning and is defined as "any instructional method that engages students in the learning process" (Prince, 2004, p. 223). Proponents of active learning endorse the idea that learners need to understand a topic in relation to their preexisting knowledge (University of Waterloo, 2019). Based on these concepts, the research team chose to create an interactive and hands-on experience that would facilitate information retention.

Third, according to adult learning theory, adults learn better through active and collaborative participation. Moreover, when active learning includes problem-solving exercises, adult learners leverage their analytical skills to understand how theories are related and applicable to real-world

scenarios (Stanford University, 2020). Based on these concepts, researchers designed the game to include real-world scenarios commonly experienced in the civilian employee workspace. Players represent employees who must work together as a team to accomplish organizational tasks while dealing with challenges and stressful situations.

Finally, group learning theory emphasizes the need for effective communication, which is reinforced through continued collaboration. An interactive game setting provides players with a social experience and the opportunity to learn from each other (Newsonen, 2014). Similarly, cooperative learning is defined as "a structured form of group work where students pursue common goals while being assessed individually" (Prince, 2004, p. 1). This learning concept encourages teamwork and cooperation and discourages competition to achieve end goals. A central strategy of *Deadlines & Deliverables* is to simulate social interactions and introduce resilience strategies so that players may learn from one another. Players must work cooperatively to accomplish tasks while keeping stress at manageable levels and attending to individual responsibilities. To facilitate cooperation, competition is not rewarded; rather, it can lead to loss of the game.

Card Game Design

The research team designed the game for four to six players (*i.e.*, employees) who together make up a team in an organization. Players have tasks to accomplish, but along the way they face daily work-related and personal challenges. These challenges create stress that requires them to expend mental effort and energy. Players must continuously work to meet challenges, handle unexpected events, and accomplish tasks, all while reducing stress and increasing resilience for themselves and their teammates. If an individual player accumulates too much stress, the team collectively loses the game. In order to win, players must communicate, cooperate, and leverage resilience strategies to reduce stress and mitigate challenges.

Game Components

Designers used the Adobe InDesign DataMerge utility to create the card game. They imported a .CSV file that contained the card values (*e.g.*, title, description, instructions) into the utility and then converted the cards into a PDF format. This method allowed for rapid design changes that were automatically applied to hundreds of iterations of cards and ensured that new cards had a consistent design and were ready for each round of user testing.

Card Types

Figure 1 displays examples of the four types of cards.

Figure 1 Examples of Card Type, Design, and Content

Blue Task cards (n=36) represent everyday work duties. Some Task cards may be completed by one player while others require contributions from multiple team members. During each round, a player must complete at least one Task card by paying a specific amount of Mental Money. Each Task card lists rewards and consequences for completing or failing to complete it. Players who do not complete a Task card on their turn may accumulate stress (Stress tokens).

Red Challenge cards (n=34) represent stressors or constraints players may experience in their personal or work lives that affect their ability to perform work duties. Challenge cards may be mitigated with the corresponding purple Resilience cards or by specific blue Task cards.

Purple Resilience cards (n=21) represent resilience strategies players may possess or learn in order to help them meet and overcome challenges. Resilience cards are the counterpart to the red Challenge cards. Players may buy Resilience cards from the "bank" or "copy" them from other players. Players benefit from additional Resilience cards because they may mitigate the effects of Challenge cards and uncompleted Task cards.

Black Event cards (n=48) represent unexpected situations that may arise. Just as in the real world, events may be positive or negative. These cards may result in a variety of effects, such as increased or decreased stress or an award of additional Mental Money.

Token Types & Game Currency

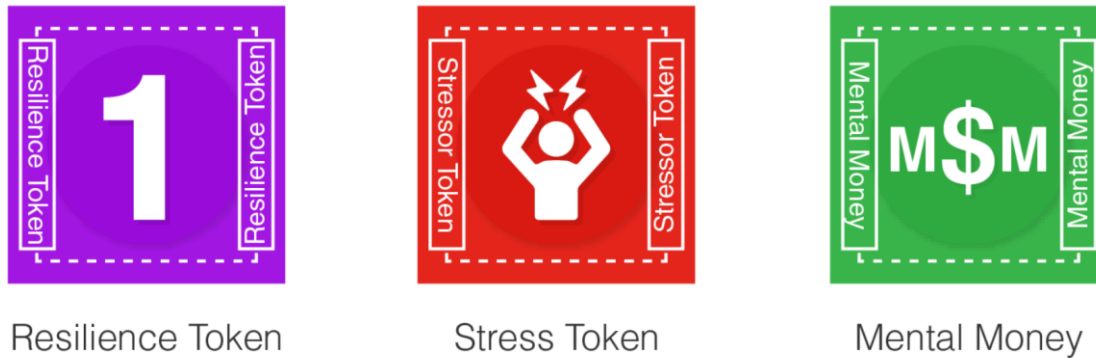Figure 2 displays the two game tokens and game currency pieces.

Figure 2 Tokens and Game Currency

Red Stress tokens represent the amount of stress each player has, and they result from Challenge cards, Event cards, and/or not completing a Task. Players accumulate Stress tokens over the course of the game, and, in order to win, the team must carefully manage the amount of stress each individual player collects. If any player has five or more Stress tokens at the end of his/her turn, the game is over and the team loses.

Purple Resilience tokens allow players to copy (*i.e.*, learn from) another player's Resilience card. This simulates how a person might learn a resilience strategy from a colleague. Players start the game with two Resilience tokens apiece that they may use to copy Resilience cards from other players throughout the game.

Green Mental Money tokens are the currency of the game. These tokens represent the mental energy or effort people have to put forward as they navigate their workday. Players will spend Mental Money to accomplish Task cards, buy Resilience cards, and eliminate Stress tokens. At the start of the game, and after each player's turn, Mental Money tokens are replenished just as employees might return to work with renewed energy after a good night's sleep.

Card and Game Piece Design

Both the layout and color of the cards are intentional. Researchers chose colors for the cards based on the feelings and responses each color is purported to elicit (IFTF, n.d.).

- **Task Cards:** Blue indicates structure, logic, and objectivity. This correlates with the set structure of work tasks that are objective and required to be completed.
- **Stress Tokens and Challenge Cards:** Red grabs a person's attention and communicates a sense of urgency. Life's challenges and stresses must be addressed before they accumulate.
- **Resilience Tokens and Resilience Cards:** Purple indicates truth, the unknown, and unrealized potential. This aligns with the resilience concept in that people may realize their potential as they become more resilient.

- **Event Cards:** Black embodies power, fear, and mystery (Bourn, 2016). Unexpected events are a part of life that can bring positive or negative results. In the game, players do not know what Event card they will draw, which adds uncertainty.
- **Mental Money Tokens**: Green is associated with growth and conditions for life to thrive. Mental Money is the currency that allows players to succeed.

An icon represents each card type. These icons provide players with visual clues to help them easily identify the actions they may take as part of gameplay. Figure 3 shows the icons used for each card type.
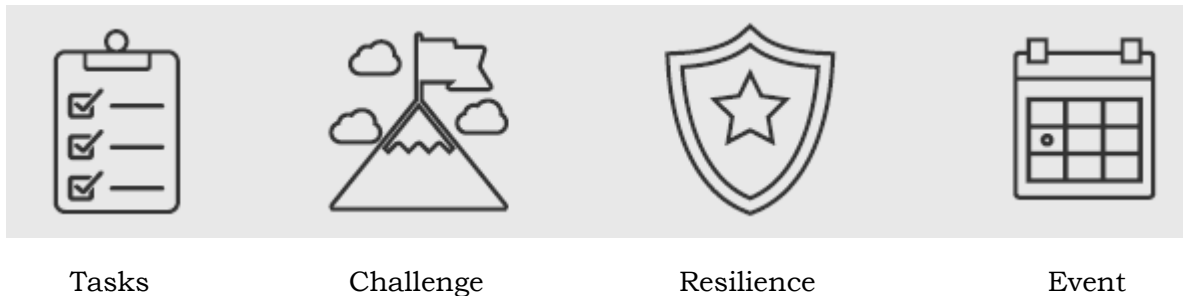

| Tasks | Challenge | Resilience | Event |

Figure 3 Card Type Icons

In addition, Challenge cards include the resilience symbols illustrated in Figure 4. Not all resilience strategies are created equally, and some resilience strategies are better suited for particular Challenges (*i.e.*, personal or work stressors). For instance, obtaining a mentor at work may help address work-related issues, but it may not help manage stress associated with caring for an elderly relative. For this reason, researchers linked Resilience cards to each category of Challenge cards.
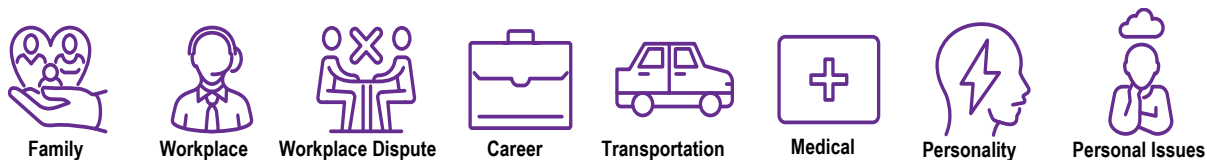
Family   Workplace   Workplace Dispute   Career   Transportation   Medical   Personality   Personal Issues

Figure 4 Resilience Symbols

Focus Groups

Once they had a full draft of the game, researchers facilitated three focus groups to obtain feedback on the game content, rules, design, and ease of play. Each focus group had six players - women and men, ages 24 to 50, with a mix of experience with games similar to *Deadlines and Deliverables*. Based on the results, researchers clarified instructions, shortened game play, simplified rules, enlarged the physical cards to maximize readability, and clarified the content on the cards. They also adjusted some of the consequences associated with certain cards that focus group members perceived as overly punitive, and they reinforced visual cues on the cards to signal potential actions. Finally, researchers added "Order of Play" cards, an instruction manual, and a player debrief to provide an opportunity for players to draw connections between the game and their real-world experiences.

Instructional Video

Many modern games include publicly accessible instructional online videos to introduce gameplay, rules, mechanics, and strategies. These videos introduce new players to the game and serve as a reference during play in the case of a rules dispute. These videos are brief and they highlight both in-game icons and graphics to depict the relationship between players, pieces, and rules. Most of these videos break down the gameplay into stages with captions.

The instructional video that accompanies *Deadlines & Deliverables* begins with a short narrative that features an "everyman" character who is trying to complete his work while under pressure. The narrative then transitions into a discussion of the game and its major mechanics, including stress, resilience, challenges, and cooperation. The video summarizes the rules and provides stepwise instructions on how a player performs a turn. (The video may be found here along with the card game and this Research Note: https://www.cdse.edu/toolkits/insider/research.html)

Playing the Game & Next Steps

Deadlines & Deliverables is available for download on the CDSE website at the above-mentioned link. The current content targets civilian employees in both the government and private sectors. To increase the likelihood of successful implementation, researchers recommend that organizations

- Involve a designated human resources (HR) representative as a game facilitator, and
- Include a train-the-trainer component to ensure that game facilitators feel confident in their understanding of the game objectives, rules, play, and that they know how to facilitate a rich debrief discussion after gameplay concludes.

Moving forward, organizations with special populations may benefit from a version of the game with content tailored to their specialized missions and job duties (*e.g.*, U.S. military). Accordingly, the research team is exploring the addition of "expansion packs" to target these special populations with additional relevant content. Further, in light of shifting workplace practices and environments, the team recommends development of an electronic or virtual version of this game.

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