The Legend of Zelda and Self-Efficacy:
A Link to Self-Directed Learning

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Abstract:

Video games are thought to meet self-directed learning expectations, improve specific skills and capabilities, and inform about self-efficacy. The Legend of Zelda game franchise is amongst the most popular and massively played games since 1986. It mostly comprises exploration-based games containing action-adventure, strategy, and puzzle elements. This paper investigates how *The Legend of Zelda: Breath of the Wild* (2017), a massive open-world Zelda, is designed to include self-directed learning skills, such as self-efficacy, that increase students' sense of autonomy and unlock their learning potentials.

Keywords:

Learning Autonomy; Self-directed Learning; Self-Efficacy; *The Legend of Zelda: Breath of the Wild;* Video Games.

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1. Introduction

Individual responsibility for one's own learning has considerably increased since the covid-19 pandemic outbreak. Students engaging in an educational process that cultivates knowledge and develops skills away from the classroom environment is a challenging task for a system attempting to implement different innovative tools and processes. Video games can arguably develop independent and autonomous learning forms that minimize the encountered difficulties targeted by key curricula aims. They offer an alternative learner-led process to connecting with educational purposes providing opportunities to enhance students' autonomy and learning habits depending on factors such as type of game, purpose of use, and learning preferences. *Minecraft, Kerbal Space Program, Infinifactory, Civilization VI, Assassin's Creed,* and *The Witcher* are examples of games that allow players to create environments, explore worlds, experiment with different materials, design and build structures, use mechanics and mechanisms, manage resources, and learn about history, culture, and literary storyworlds and narratives. Their engaging in-game experiences increase efficacy to get oneself to regularly perform strengthening tasks increasing the likelihood of success.

Malcolm Knowles defines self-directed learning (SDL) as:

a process in which individuals take the initiative, with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluating learning outcomes (Knowles, 1975, p. 18).

Students, in setting learning goals, take the initiative to select resources for better results. They play an active role in their own education increasing their reflective skills and their sense of autonomy. When doubled with self-efficacy indicators, SDL is integrated with a process of self-appraisal conveyed through changes in behaviour, environment, and cognition. Albert Bandura conceptualizes self-efficacy as the determinant of human behaviour and motivation. The four main principal sources of information that significantly assess individual capabilities construct self-efficacy through reflective thought. They are instructive and conveyed enactively, vicariously, persuasively, or psychologically. Efficacy indicators are cognitively interpreted through personal, social, and situational experiences operating as a process of self-appraisal (Bandura, 1997). In fact, "the items are phrased in terms of *can do* rather than *will do*. *Can* is a judgment of capability; *will* is a statement of intention" (Bandura, 1997, p. 43). When presented with different items, the individual's performance is consistent with their own capabilities and the belief in their own efficacy.

Video games foster the ability to increase perceptions of self-efficacy required in SDL. Players practise this mode and construct skills and methods applicable to learning situations. Toh and Krischner investigated the factors that can be integrated in game design to foster SDL strategies in students. They determined that a model could be developed from players' experience in video games "structured in terms of 'meta-behaviour', 'metacognition', and 'meta-emotion'" (Toh &

Krischner, 2020). This model enhances students' capabilities to try, observe, reflect, and synthesise. The potentials of video games in promoting SDL have also been identified as effective in the context of digital pedagogy. Playing 1) challenges students to think creatively, 2) incorporates problem-solving and critical thinking elements, 3) fosters a sense of community, 4) provides feedback on performance, and 5) helps understand how to create clear and concise instructions (Bañes, Gubat, Soberano, & Pisueňa, 2023).

Castell et al. generated evidence of the significance of building narrative competence by conducting a study that involved playing *The Legend of Zelda: Windwaker.* In this narratively framed game, direct instructions were implemented within each play session. Participants were more motivated to experiment rather than systematically progress as required by the story-driven game (Castell, Flynn-Jones, Jenson, & Bergstrom, 2017). Players are often eager to deviate from a linear progression and experiment on game mechanics. Different games function as a practical environment to enhance learning outcomes such as narrative competences, cultural awareness, curiosity, creativity, experimentation, and design. They also help develop SDL strategies aligned with recommended higher education competences, namely, autonomy and increased learning capabilities. In fact, players beliefs about their personal efficacy in accomplishing instructed tasks and achieving specific goals are shaped by the four sources of information.

This paper argues that *Zelda: Breath of the Wild* (2017) is an open-world narrative-based Zelda game that offers the digital location suitable for players to promote self-efficacy. By looking

into the four sources of self-efficacy, players' knowledge based on mastery experience, vicarious experience, verbal persuasion, and affective state, the paper discusses that in game experiences provide strengthening self-efficacy beliefs that could extend to other learning contexts. Self-efficacy theory primarily develops through 1) enactive and 2) vicarious learning. While the first refers to learning from one's previous experiences, the second is based on observing other individuals' actions and the outcomes of their performances. Both learning modes build an understanding of self-efficacy based on personal and/or similar experiences of success and failure. Learners believe in their ability to perform a task and predict its outcomes through 3) verbal persuasion and 4) affective state as well. The persuasive affective knowledge conveys to task performers evaluative information and appraisals that promote personal efficacy (Bandura, 1997).

These factors are guidelines by which confidence in learner's abilities, autonomy, connectedness, and sense of accomplishment are measured. There implementation in videogames intersects with self-efficacy in various ways. Players' ability to complete challenges, progress through narrative-based structures, defeat varied difficulty level opponents, observe other successful players, receive positive feedback and encouragement, and develop specific skills and competences increase self-knowledge in several critical thinking areas. *Zelda: Breath of the Wild* (ZBW) is a non-linear massive open-world adventure game that is full of exploration spaces and

opportunities. This allows players to experience the environment and the story at their own pace discovering hidden items and secrets along with new skills and capabilities. In addition, the game design prioritizes freedom in choosing playing sequences rendering the experience more personal, dynamic, and interactive. This increases playability freedom and along with it, the number of skills to develop, such as designing and building structures and using machines and mechanics. The impact ZBW is significantly connected to learning ability. Through an analytical reading of the game, the paper illustrates how different elements contribute to building the knowledge of self-efficacy players develop about themselves.

2. **Enactive Mastery Experience through Major Tests of Failure and Success:**

Success is the ultimate outcome of educational practices. However, failure experiences easily discourage individuals from completing tasks. One of the types of video games is what is distinguished as game of skill and "tied to personal ability" rather than luck (Juul, 2013, p. 73). It requires from the player to repetitively perform different tasks that are similar in nature in order to successfully master a targeted skill or acquire a specific knowledge about the gameplay dynamics. Players, in ZBW, can continuously improve their skills as they have the possibility to return to different sites and complete side quests throughout the massive Hyrule world. They are willing to master whatever it takes to succeed while believing in their ability to do so. Their failure only establishes a confirmation of this willingness shown through their persistent efforts. Bandura confirms that "difficulties and setbacks in human pursuit serve a beneficial

purpose in teaching that success usually requires sustained efforts …[and] how to turn failure into success by honing one's capabilities to exercise better control over events" (Bandura, 1997, p. 80). Link, Hyrule hero in Zelda games, navigates throughout unique regions of the kingdom that are filled with secret holding shrines. The Chaas Qeta shrine, for instance, is one of the most challenging in Hyrule and tests players' patience and strength. The player can judge their personal efficacy through the perceived task difficulty. If they succeed in defeating the Guardian Scout and win the three rare weapons, the climbing gear, and the spirit orb they gain new efficacy knowledge about increased capabilities. That is, by performing higher difficulty level tasks, players gain new powers and accumulate further abilities that determine a high level of enactive mastery experience.

While most competences in games are developed with success, "failure forces us to reconsider what we are doing, to learn" (Juul, 2013, p. 122). In fact, improving performance levels is often associated with a mastery of the gameplay. However, players can spend hours on a game but mark little progress if any at all. ZBW offers opportunities to continuously test personal efficacy. Challenges that eliminate gross mistakes and demand intricate new skills are arranged in phases moving from early in the game difficulty stage to intermediate to end of game mastery level. This is specially experienced once the player enters one of the divine beasts. They confirm that "temporal changes in attainments carry efficacy implications" (Bandura, 1997, p. 86).

That is, being stuck in the game implies additional time and effort invested to "attain higher level of proficiency" (Bandura, 1997, p. 86). This process allows players to reconstruct memories of past successes and failures and integrate already acquired capabilities to attain greater ones. Players in ZBW encounter several bosses with difficulty levels that could be ranked from moderate to hard. Thunderblight Ganon is one of the most challenging to defeat. He is extremely fast, hard to hit, and possesses great electric powers. Link, on the other hand, needs to cook and consume meals and elixirs to repel electricity, get the Thunderblade to strike and the Shock Armor to block attacks, and wear the rubber tights and armour and the Topaz Earrings for better lightening resistance. The block and attack strategy in a fast movement battle can cause a considerable delay to players in progressing as it requires great dexterity and memory recollections skill. Players failing to fatally strike Thunderblight Ganon realize they are missing an item or a skill to beat him. With continuous trial and error, they acquire the necessary aptitudes to progress defeating failure and unlocking further learning capabilities.

2.1. YouTube Vicarious Experience:

Referential comparison with others is another tool that promotes a sense of personal efficacy. Bandura argues that "visualizing people similar to oneself perform successfully typically raises efficacy beliefs in observers that they themselves possess the capabilities to master comparable activities" (Bandura, 1997, p. 87). Similar pursuits reunite individuals in evaluation platforms where they qualify and influence each other's performances. The participatory culture of the social

groups brings communities into existence. They create the vision of the game and "share values, rules, and practices" (Lacasa, 2013, p. 4) enabling information sharing. Participatory video making is one of the production processes that allows active players to create and send low-cost messages for other people on popular internet giants such as YouTube. In fact, "video has become an important mode of participatory media and a popular locus for young people to represent their identities" (Yang, 2016, p. 20). It contributes to understanding the vicarious experiences of players who, in building gameplay capital, expand knowledge about themselves and others. The collective understanding of specific gameplay practices evokes fixed self-efficacy beliefs and confirm learnt strategies.

Gameplay shared videos are referential and interactive in nature acting as indicators of capabilities and self-improvement initiators. They claim control over the game constantly conveying self-efficient play experience. One of the most viewed ZBW gameplay videos on YouTube, entitled Legend of Zelda: Donkey Breath, represents a symbolic environment of failure. Posted 6 years ago by videogamedunkey with over 22 million views and 12k comments, the video is modelled to influence exploration, value errors, and relate trial to effectiveness. With a particular sense of humour in addressing mistakes, the player invites commentors to participate with their own efficient experience integrating a motivational process along with self-evaluative incentives into the game. Although Bandura states that "people are more likely to exhibit modeled behavior if it

results in valued outcomes than if it has unrewarding or punishing effects", we can observe that vicarious failure experiences of others can positively influence personal conduct (Figure1).

Figure 1: Viewers commenting on ZBW gameplay participatory video.

Source: (videogamedunkey, 2017)

Players develop comparative skills measuring their own developing capabilities compared to others. They can see themselves as agents for learning style transformation by witnessing both similar and dissimilar outcomes through participatory videos.

2.2. In-Game Verbal Persuasion:

The three comprising tenets upon which Zelda games are founded are power, courage, and wisdom (Johnson & Johnson, 2019, p. IX). Throughout ZBW, these principles become multifaceted virtues resonating with the key capability players progressively develop. They are communicated through text-based performance feedback appraisals framed and conveyed as evaluative information appearing on the play screen, directed to performers to confirm self-affirmed beliefs of self-efficacy. The diagnostic competent of the text evaluates "whether deficient performances reflect basic skills deficit or ineffectual use of preexisting skills" (Bandura, 1997, p. 105) ultimately fostering effective understanding and use of player's abilities. Persuasive practices and strategies are, thus, "powerful efficacy-prompting influences" that cultivate "people's beliefs in their capabilities" (Bandura, 1997, p. 106). Conde-Pumpido proposed a theoretical framework, based on a critical literature review and a critical analysis of existing persuasive games, that identifies three types of persuasion: "exocentric persuasion, as a game-centric approach for persuasion; endocentric persuasion, as a player-centric approach for persuasion; and game-mediated persuasion, as a context-centric approach for persuasion" (Conde-Pumpido, 2017, p. 32). ZBW has a variety of built-in persuasive strategies that communicate information through multiple sensory channels. The following analysis focuses on text-based ones.

Text persuasion, one of the seven persuasive dimensions related to exocentric persuasion, is used in ZBW during battles to encourage players, pay attention to issues related to weaponry, and indicate strategic striking possibilities. Players can understand the (in)efficiency of their actions following in-game text feedback such as: "Great, Link!", "Beautiful!", "Just like that", "Watch out for that sword!", and "Your [weapon] is badly damaged" (Fujibayashi, 2017). Battle grounds, are therefore, being used as channels for performance appraisals that confirm players' attitudes of self-efficacy that could extend beyond the playing session. Additionally, appraisals foster motivational potentials that result in an increase of engagement with the game. Endocentric persuasive strategies "are used to make the game compelling enough for players, and to keep them busy and motivated enough in the experience" (Conde-Pumpido, 2017, p. 35). Players are immersed in an experience that arouses their emotions. Zelda keeps the player focused during the final battle against Ganon by verbally persuading them to perform specific tasks and attacks. Her voice is heard while Link is performing all acquired fighting skills to destroy the different forms Ganon takes. Appraisals such as, "courage needs to be remembered. For it is never forgotten", "May you be victorious!", "Ganon's power is weakening", "Go!", and "It's working" (Fujibayashi, 2017) ease the difficulty level of going through the final boss. Players' beliefs in their capabilities are confirmed through in-game verbal persuasive appraisals that increase opportunities of self-development and self-knowledge.

2.3. Psychological and Affective States:

Players' performance can significantly be affected by their perception of self-efficacy. Recalling past successes and failures and their perceived affective reactions induce mood states that are duplicated on future experiences. In fact, "the more intense the induced mood, the greater is its impact on efficacy beliefs" (Bandura, 1997, p. 112). Similar performances, requiring player in-game developed capabilities, are based on perceived affective self-efficacy judgment that predicts achievement. A high sense of self-efficacy is more significant and practical than emotional arousal in motivating performances and affirming accomplishments. Totawar and Nambudiri propose an alternative linkage between mood and self-efficacy emphasizing on "the role of hedonic and utilitarian motivation as a moderator of the relationship between mood and self- efficacy" (Totawar & Nambudiri, 2013, p. 3). While hedonic motivations are intrinsically driven for their appealing and enjoyable nature, utilitarian motivations are extrinsically dependent on the achievement of a goal extrinsic to behaviour (Totawar & Nambudiri, 2013). A ZBW player's experience is influenced by task-related affective events that moderate between mood and self-efficacy "such that, when the individual's mood-state is positively valenced and the nature of task motivation is hedonic, perceived self-efficacy is likely to increase" and "when the individual's mood-state is positively valenced and the nature of task motivation is utilitarian, perceived self-efficacy is likely to have no effect" (Totawar & Nambudiri, 2013, pp. 11-12).

ZBW players are likely to experience positive mood states throughout the game. Excitement in discovering shrines, anticipation related to recalling lost memories, and satisfaction in defeating all enemies, from a Chuchu to a Silver Lynel, are hedonically motivating tasks that significantly improve the player's mood. In completing quests and missions, players of ZBW learn a sense of purpose and direction. They set objectives and work towards completing them effectively putting to use all their found items originally acquired to enhance the gameplay experience. The items could be upgraded and provide players with new abilities that increase effectiveness. Players are also rewarded with objects, currency, and trophies for completing tasks which motivates them to strive for success. They are encouraged to explore the massive open world of the game and discover all its shrines and divine beasts constantly uncovering secrets and new areas. Players are, therefore, intrinsically motivated to progress in the game and are invested in the ZBW storyworld and its characters. That is, players' positive hedonic motivation and enjoyable playing experience allow them to feel more confident in their ability to perform well in the game affecting their mood and self-efficacy beliefs.

3. Conclusion:

With post Covid-19 higher education requirements involving an increase in self-directed learning strategies, students are encouraged to actively engage with setting their own learning goals, decide on how to complete tasks, and evaluate their own progress and competences (Knowles, 1975). This also involves pursuing knowledge based on individual and personal interests rather than solely relying on classroom environments, online

learning platforms, syllabus requirements, and teachers' recommendations. Bandura confirms that the four sources of efficacy in an individual are indicators of capability that influence and motivate future performances. Players who believe in their self-efficacy integrate game acquired skills into SDL strategies linking playing experiences to educational outcomes.

Self-efficacy information gained from playing experiences indicate personal capabilities could be integrated with SDL. The strategies that are learnt enactively, vicariously, persuasively, and psychologically provide a learnt process by which individuals understand the efficiency of taking individual initiatives, diagnose their learning needs through formulating learning goals, and choosing and implementing appropriate learning strategies for better educational outcomes. The multiple benefits of gaining knowledge about one's capabilities contribute not only to learning but also to diverse ways of human functioning; "they do so by enlisting cognitive, motivational, affective, and decisional processes through which accomplishments are realized" (Bandura, 1997, p. 115). Individuals become able to understand tasks, identify obstacles, and develop strategies through a cognitive mental process that involves the in-game learnt ability of problem-solving. They are driven psychologically to pursue goals and improve personal values, persistence, and resilience in the face of challenges. It is a motivational process that arouses cognitive abilities through affective responses. That is, positive appraisals such as excitement and enjoyment increase goal accomplishment

satisfaction. The decisions made to pursuing the goal enhance the individual's strategic choice making skills in relation to feedback and affective outcomes. When integrated in SDL, this approach to acquiring self-efficacy through video gaming teaches players that they can take control of their own learning and deliberately and intentionally pursue goals and complete tasks.

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