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The relationship between collective efficacy and reward dependence among graduate students at Wasit University

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Abstract: : The aim of the research is to identify the collective effectiveness and its relationship to the dependence on reward among graduate students at Wasit University, as well as the statistically significant differences according to gender (male - female students) and specialization (scientific - humanities). The research was applied to (295) male and female students. To achieve the research objectives, the collective effectiveness scale was used in its final form (28) paragraphs and the reward dependence scale in its final form (18). The results showed that graduate students enjoy collective effectiveness and possess reward dependence behavior, and that PhD holders have the highest level, and that males also have the highest level in collective effectiveness, and there is no difference in scientific and humanities specializations in collective effectiveness, and that master's degree holders have the highest level of reward dependence behavior, and that females have the highest level as well as the humanities specialization in reward dependence behavior, and there is a weak and superficial relationship between the two variables.

Keywords: Collective efficacy, Reward dependence

1. Introduction

Reward is considered one of the issues associated with pleasure and is centered around control at the lowest optimal level in the pursuit of reinforcement and gratification by allocating the expected effort for it. Under various and diverse circumstances, it is regarded as an experience that may be threatened by inappropriate responses to situations that result in the termination of a task or performance. Consequently, the idea of reward may lead the individual to feel sufficient or insufficient depending on their self-confidence or the achievement of the intended goal. It may also reduce self-attribution of inadequacy, lessen feelings of inferiority, and decrease the sense of embarrassment when receiving a reward instead of requesting it (McCarthy et al., 2015:144).

In the same context, the individual's request for a reward may stem from an interpretation linked to their perceived need for it due to a lack of abilities. This reflects on their perception and their psychological state regarding their capabilities. Moreover, the lack of enjoyment, particularly when the activity becomes a mechanism to control reward, is interpreted as a response to motivating stimuli in a specific pathway. This either increases or decreases their motivation for future success (Pizzagalli, 2022:264).

Since postgraduate studies require the consistent reinforcement of rewards within social and cognitive frameworks despite differences in specialization, levels of maturity, acceptance, traditions, concepts, and societal philosophies — these elements carry social implications. They also influence the students' levels of optimism and pessimism about the perceived difficulty or ease of academic life. Thus, this variable becomes critical in understanding readiness through students' interactions, as it reflects a collective efficacy state that gives meaning to how they engage with their professors and peers, in addition to

shaping their future thinking and ambition levels. This occurs when students feel supported by the nature of the reward whether it is situational, direct, or indirect without exploitation or feelings of inferiority, which in turn enhances their self-worth.

Some postgraduate students may adopt and develop an enthusiastic style of engagement under challenging circumstances and demanding tasks, allowing them to enjoy critical skills that enable them to effectively deal with all life challenges. This also allows for awareness and acceptance of the present moment, belonging, and the ability to respond thoughtfully rather than reactively (Clemente, 2020:114).

The interaction between mental flexibility and diverse, difficult situations is entirely dependent on understanding immediate or delayed reinforcement, which contributes to an individual's overall well-being in addressing challenges from all aspects. This is interpreted in terms of the desired type of reward (McCarthy et al., 2015:327).

Accordingly, many individuals believe that when they engage with various situations, they must attempt to analyze their behavior and seriously focus on building social relationships and finding suitable interactions. As a result, they tend to favor group efficacy in response to their moods and differences in thinking as a coping mechanism. These implications arise from the misalignment in behaviors and situations between individuals or groups with differing viewpoints, especially in significant issues. These situations must encompass the interests, positions, cultures, beliefs, skills, needs, values, and perceptions of justice of the group. Such effects may be visible or invisible, and they may occur in minor interpersonal situations or in larger group contexts (Bandura & Weiss, 2000:476).

This aligns with what Bandura (1997) specifically confirmed that previous academic successes contribute to building learners' beliefs in the competence of faculty members, whereas failures tend to erode those beliefs and convictions (Bandura, 1997:116).

Parker et al. (2006) proposed that perceived group efficacy among learners is based on shared experiences in educational situations, where learners repeatedly engage in planning, monitoring, and evaluating instruction. In return, they anticipate group efficacy that activates self-efficacy beliefs, with these beliefs being influenced by perceived collective efficacy (Parker et al., 2006:113).

The English scholar Vernon (1981) explained that we face challenges across intellectual, scientific, and cultural dimensions, and the optimal solution lies in teaching students cognitive and social strategies, encouraging them to use these strategies, and allowing them to savor the immediate reinforcement resulting from their efforts in applying them (Shalaby, 2004:154).

The group is considered a successful and effective tool in building and maintaining relationships with others. Within groups such as the family, peer groups, and classroom settings, it helps the individual learn appropriate and socially acceptable behaviors. It also offers opportunities for engaging in satisfying social relationships, assists in identifying personal goals, and provides various benefits that arise from interaction and cooperation with others. (Levitt, B. & March, J., 1998:34)

Group work for university students is one of the key forms of cohesion in applying social activity. It involves skills such as mutual assistance, strengthening interpersonal relationships, accepting differences among individuals, and offers multiple advantages including, but not limited to: empathy, feedback, instilling hope, mutual support, normalization, social adaptation, and receiving approval through voluntary participation.(Toseland, R. & Rivas, R., 2009:47)

In addition to these traits and benefits, involving students in group work directed toward self-awareness is crucial in enhancing their insight and self-perception, thereby strengthening their collective efficacy. This self-awareness and insight, developed through group engagement, can influence students' perceived group effectiveness. Bandura (1997) describes efficacy as individuals' beliefs in their capabilities to achieve specific accomplishments in defined contexts.

(Bandura, A., 1997:21)

Collective efficacy is a significant component of self-efficacy. It is cognitive in nature and receptive to the influences and transformations introduced by knowledge. Efficacy expectations shape, develop, generalize, and sustain coping behaviors. On the other hand, it reflects one's belief in their ability to handle stressful and challenging life events. (Scholz, U. & Schwarzer, R., 2005:121)

Participation within a group context represents authentic practice involving real learning, aligning with the theoretical orientations of social learning theories. When an individual seeks to prove themselves in isolation from others, the focus shifts solely to their performance and abilities. This often negatively affects relationships and may result in performance fragmentation, dissatisfaction, rejection of criticism, and continued self-centered behavior. Such tendencies reduce effort and performance and are described as "psychological entitlement." However, when one takes a serious and productive step toward meaningful group participation and belonging, it leads to a different kind of performance known as collective efficacy. (Campbell, W., et al., 2007:716).

Susan Johnson (2012) found that collective efficacy is notably influenced when individuals collaborate three or more times per week. Such cooperation helps establish protocols or rules during teamwork that enhance focus and organization. It also promotes communication, builds trust, encourages support, and drives individuals toward collective benefit and achievement of learning goals. However, the extent to which performance-based success and evidence-based practices vary depends on the community. For instance, Parker et al. (2006) suggested that group efficacy depends on shared experiences in academic settings, where individuals frequently interact to plan, monitor, and assess instruction—thus expecting high collective efficacy. In institutions where such interaction is minimal, group efficacy may rely more on prediction and estimation unless the four essential components are met. (Parker, K., et al., 2006:28).

Numerous studies have shown positive moderate correlations between collective efficacy, student achievement, and individual learner self-efficacy. Notable studies include: Mawhinney et al. (2005), Bandura (1994), Goddard et al. (2000), and Tschannen et al. (1998). Self-beliefs shape how people feel, think, motivate themselves, and act. These beliefs produce diverse effects through four core processes: cognitive, motivational, affective, and selection mechanisms. A strong sense of efficacy enhances both personal achievement and well-being. Individuals confident in their abilities approach difficult tasks as challenges rather than threats. This perspective fosters intrinsic interest, deep engagement, and goal commitment. (Bandura, A., 1997:141).

Individuals with high collective efficacy persist through failure, quickly regain their sense of capability, attribute failure to insufficient effort or a lack of knowledge and skills that can be acquired, and confront threatening situations with a belief in their control. This effective mindset leads to fruitful personal accomplishments, reduces stress, and decreases vulnerability to depression through perseverance. (Bandura, A., 1997:221).

Constantin explains that perseverance is tied to the quality of rewards and that motivational group participation acts as a compass for this perseverance. Its development in psychology has been uneven and shaped by various theoretical perspectives—philosophical, teleological, educational, or personal. Based on this, perseverance has been categorized under concepts such as will, reinforcement, or commitment. However, these differ from the concept of relying on rewards. (Hojbota & Constantin, 2009:2)

Achievement motivation, for example, refers to the tendency to reduce effort following repeated failure in accomplishing a task and is influenced by the absence of rewards. Perseverance, by contrast, relies on consistency and vitality, operating within a framework of stimulation and motivation that fuels enjoyment. (Pravitchi, 2019:21)

Low enjoyment among individuals leads to lower administrative and academic performance in educational institutions, which in turn affects education quality. It also exposes individuals to psychological and physical challenges, such as dissatisfaction, anxiety, and disruption in the activation system. (Al-Khatib & Al-Qara'an, 2020:15)

The behavioral activation system comprises three sub-dimensions forming a higher-order factor. The first is reward responsiveness, the second is drive, and the third is fun-seeking. Together, they constitute the behavioral activation system related to reward. (Onturk, 2020:51).

Rewards play a crucial role in conveying the value of the individual. The extent to which a person perceives themselves as valuable within an institution's strategic thinking influences the impact of the rewards offered. This perception can be shaped through rewards and promotional offers, particularly during holidays or personal occasions. The goal of such strategies is not only to improve performance but also to distinguish certain individuals from others. The more valuable the rewards are, the more enjoyable and meaningful they become from the individual's perspective.

(Kyoungseok & Sun Joo, 2017:42)

Based on this, the researcher directed attention to the study variables—collective efficacy and reward reliance—among postgraduate students, given his role as a faculty member and observation of declining group efficacy among students. This decline negatively impacts their engagement, social integration, and scientific performance—both individually and institutionally—hindering creativity and optimal academic performance. It is likely that collective efficacy influences individuals' social behaviors and participation in internal and external activities. Students with high collective efficacy are more likely to volunteer and contribute, motivated by the type of reward associated with their metacognitive awareness. Thus, the researcher identified the theoretical significance in the knowledge contribution of this research and its practical significance through the development and application of scales measuring collective efficacy and its relation to reward dependence.

From the researcher's perspective, the current research problem is determined by finding logical answers to his scientific questions, in accordance with his research objectives, which can be summarized as follows: Do students force themselves to reach the reward request involuntarily or voluntarily? And what is the relationship between collective efficacy and reliance on reward?

Aim of the Research

1. Collective efficacy among graduate students at the University of Wasit.

2. Statistically significant differences in collective efficacy among graduate students at the University of Wasit according to gender (male/female students) and specialization (scientific/humanities).

3. Reliance on rewards among graduate students at the University of Wasit.

4. Statistically significant differences in reliance on rewards among graduate students at the University of Wasit according to gender (male/female students) and specialization (scientific/humanities).

5. The relationship and differences between collective efficacy and reliance on rewards among graduate students at the University of Wasit according to gender (male/female students) and specialization (scientific/humanities).

Definition of terms

First: Collective Efficacy

1. Bandura (1997) defines it as: "Those beliefs held by an individual when they are engaged in a task with others" (Bandura, 1997: 997).

2. John (2016) defines it as: "It is more than just positive thinking and more than a shared planning time. It is a shift in the collective mindset that enhances teamwork. It is used in groups only to improve student performance" (John, 2016: 225).

3. Donohoo (2017) defines it as: "Creating opportunities for meaningful collaboration, empowering students, setting high goals and expectations, helping them develop results, and providing feedback." (Donohoo.C, 2017: 137)

4. Bloomberg and Pitchford (2017) define it as:A collective belief among groups in their ability to effect positive change, a sense of urgency, and a strong intention to create opportunities for meaningful collaboration and collaborative forecasting. Together, these moments enhance the collective effectiveness of the learning team and ultimately impact student achievement.

(Bloomberg.B & Pitchford ,2017: 31)

From this, the researcher draws on Albert Bandura's theoretical approach in establishing the following theoretical definition: It is students' beliefs in their abilities that motivate them to work collaboratively with others and influence them as an activity in learning and solving problems they encounter during academic and collaborative learning. This is represented by a tendency toward group-oriented behavior.

2- Reward Dependence

1. Corr (2001) defines it as: a behavior that operates on three systems. The first activates the behavior if it is sensitive to cues indicating reward, while the second system is behavioral inhibition, which is sensitive to signs of punishment and to the lack of reward or reward. Finally, the third system is the fight-or-flight system, which is sensitive to the need to quickly escape sources of punishment (flight) and defensive aggression (fight) (Corr, 2001: 352).

2. Norton et al. (2012) define it as contradictory patterns when receiving reinforcement in exchange for work, known as the effort paradox, due to the precise timing of the behavior (Norton et al., 2002: 125).

3. While Kyungseok and Sun Joo (2017) define it as :It is a set of reinforcements that an individual receives under certain conditions.(Kyoungseok & Sun Joo, 2017: 42).

4. In light of the theoretical approach of Corr's theory (2001), the researcher deduced the concept of reward dependence and defined it as (an action performed by an individual with the goal of seeking reinforcement needs according to the situation, condition, and degree of acceptance in solving a problem or obstacle in its various cognitive, social, and material aspects. It is composed of three systems: the first operates by fixation, the second by inhibition, and the third by escape and avoidance) The operational definition of the two scales: It is measured operationally by the total score students obtain on the two scales.

Background

Collective Efficacy

Bandura's Social Cognitive Theory (1997):

Albert Bandura introduced the concept of self-efficacy in the late 1970s (Bandura, 1977). Self-efficacy is grounded in the theoretical framework of social cognitive theory, which emphasizes beliefs in one's own capabilities as a powerful determinant of individual effectiveness. In other words, beliefs about one's capabilities influence not only the choice of activities but also the perception of obstacles and the level of effort exerted toward specific tasks. According to Bandura (1997), these beliefs are often more influential than actual abilities and significantly impact people's motivation and behavior. They are shaped by contextual information available in specific situations.

(Bandura, 1977, p. 38)

Bandura pointed out that observing similar others performing well or holding strong efficacy beliefs can transmit a strong sense of efficacy, which in turn influences behavior. In other words, students with high efficacy beliefs not only model positive behaviors to their peers but are also more likely to transmit those beliefs through interpersonal interactions. However, the effects of highly efficacious students on group efficacy and the use of cognitive strategies within larger group settings require further study. Bandura identified four distinct sources that build efficacy beliefs: vicarious experiences, verbal persuasion, physiological arousal, and mastery experiences. Vicarious experiences refer to learning that occurs through observing others. Most human learning takes place through observation and imitation. Individuals do not only learn through direct experience but also acquire a wide range of skills, behaviors, and professional competencies from models presented to them, encountered in their environments, or actively sought out to achieve specific goals that support positive behavior modification and the attainment of acceptable performance standards in educational and other settings. (Bandura, 2000, p. 1)

Bandura proposed the concept of collective efficacy in 1986 as part of his social cognitive theory of psychology. Building upon his work on self-efficacy, he described collective efficacy as a group-level construct rather than a mere aggregation of individual members' perceptions. This shift from individual to group psychology anchored the concept of collective efficacy in applied fields such as educational psychology, social psychology, and

sociology, enabling each discipline to develop distinct yet interconnected research streams. (Bandura, 1986, p. 444)

He explained that collective efficacy refers to a group's, team's, system's, or larger social entity's belief in its ability to achieve goals. In other words, self-efficacy and collective efficacy are related or integrated constructs that differ mainly in their focus: the former on individuals and the latter on group dynamics. Thus, strategies that enhance self-efficacy are also likely to promote collective efficacy. For instance, goal characteristics such as proximity, specificity, and difficulty impact self-efficacy. Proximal goals are more effective at increasing self-efficacy and motivation than distant ones because they allow for easier progress assessment. (Bandura, 1997, p. 18)

In other words, distant goals are harder to evaluate, as learners receive less clear feedback on their progress even if they are performing well. Additionally, specific goals are more effective than general ones (e.g., "do your best") in enhancing individual motivation, as clearly defined performance standards are easier to measure. Specific goals improve task performance by clearly indicating the level of effort required for success and the expected self-satisfaction upon achievement.(Schenk, D., 1991, p. 119)

Furthermore, goals that are initially difficult but attainable for highly efficacious groups contribute to increased collective efficacy by providing clear information about student capabilities. Setting effective goals to enhance self-efficacy can produce similar effects on collective efficacy. Thus, educators and learners aiming to enhance collective efficacy should set clear, proximal, and moderately challenging group goals. Accordingly, self-efficacy has positive effects on students' learning behaviors and academic achievement. Teachers who wish to improve individual learning can apply collective efficacy strategies to boost students' self-efficacy, which may in turn indirectly enhance group learning.

(Pintrich & Groot, 1990, p. 78)

Such behaviors can be adjusted if they are found to be inadequate for achieving the required level of competence, depending on the nature of the task, its content, or associated risks. Institutions and individuals often observe and note performance behaviors that need refinement to align with expectations, drive creativity, and increase productivity—ultimately leading to high levels of efficacy. Reaching such high efficacy eliminates the need for overthinking due to various personal factors (e.g., ambition, promotions, job security) or institutional motivations. (Bandura et al., 2004, p. 55)

Bandura outlined three major psychological processes through which beliefs about collective efficacy influence individual performance:

A. Cognitive Processes:

The influence of collective efficacy beliefs on cognition takes multiple forms. Much human behavior is goal-directed, and goals are shaped by individuals' self-assessments of capability. The stronger the perceived self-efficacy, the higher the goals individuals set for themselves and the stronger their commitment to achieving collective efficacy. Most courses of action are initiated based on beliefs about their effectiveness. People with strong collective efficacy visualize success, while those who doubt their efficacy anticipate failure and dwell on what could go wrong. A strong sense of efficacy is essential for staying focused on tasks and sustaining performance, especially under pressure or setbacks. In contrast, individuals with low efficacy beliefs exhibit disorganized thinking, lower aspirations, and declining performance. Those with resilient efficacy beliefs set high goals and

apply analytical thinking, which results in performance achievements. (Bandura et al., 2004, p. 46).

B. Motivational Processes

Self-efficacy beliefs related to collective efficacy play a central role in the self-regulation of motivation. Most human motivation is generated proactively, as individuals form beliefs about what they can accomplish, anticipate the likely outcomes of prospective actions, set personal goals, and devise plans of action aimed at a desirable future. Three major types of cognitive motivators have been identified in this regard: causal attributions, outcome expectancies, and goal-setting. The theories that explain these motivators include attribution theory, expectancy-value theory, and goal-setting theory, respectively.

Self-efficacy beliefs operate across all of these motivational models. For example, beliefs in efficacy influence causal attributions: individuals who perceive themselves as competent tend to attribute failure to insufficient effort, whereas those who doubt their efficacy tend to attribute failure to lack of ability. These causal attributions significantly affect motivation, performance, and emotional reactions, all mediated through self-efficacy beliefs.

(Wang, X. A., & Lin, S. J., 2000: 226)

In expectancy-value theory, motivation is regulated by the expectation that a particular course of action will lead to certain outcomes, and the value assigned to those outcomes. However, people act not only on their beliefs about potential outcomes but also on their beliefs about what they are capable of achieving. Thus, the motivational effect of outcome expectations is partly dependent on perceived self-efficacy. There are countless desirable alternatives that individuals do not pursue simply because they believe they lack the necessary abilities. Expectancy-value theory's predictive power is enhanced by including the impact of perceived efficacy.

Substantial evidence shows that clear and challenging goals improve motivation. Goals function largely through self-influence mechanisms rather than directly regulating behavior. Goal-based motivation involves a cognitive comparison process in which self-satisfaction is made contingent on meeting specified objectives. Individuals use these goals to guide their behavior and create incentives to persist in their efforts until goals are met. They seek self-satisfaction through the accomplishment of valued objectives and are driven to increase their efforts when dissatisfied with substandard performance.

Goal-setting theory also supports revising personal goals in light of progress made. Self-efficacy beliefs influence motivation in several key ways:

The goals people set for themselves determine how much effort they will expend and how long they will persist in the face of challenges.

When confronted with obstacles and failures, those who doubt their capabilities reduce their efforts or give up quickly. In contrast, those with strong beliefs in their abilities intensify their efforts when confronted with difficulty. This persistence is a key contributor to performance achievements.(A. Bandura et al., 2004, p. 48)

C. Emotional Processes

People's beliefs in their capabilities influence how well they manage stress and depression in novel and challenging situations, as well as their overall level of motivation. Perceived

self-efficacy in collective functioning plays a critical role in regulating anxiety when managing pressure. Individuals who believe they can handle threats are less likely to engage in stressful or convoluted patterns of thought. Those who doubt their ability to manage threats are more prone to experience stress and anxiety.

Collective efficacy in regulating thought processes is a key factor in managing stress triggered by repetitive or overwhelming concerns. A perceived inability to stop intrusive thoughts is a major source of distress. Both perceived self-efficacy and control efficacy within a group context work together to reduce anxiety and social withdrawal—especially when collective functioning is constructive, productive, and supportive of ideas and contributions.

Social cognitive theory describes mastery experiences as the primary mechanism for altering personality. Guided mastery is a powerful method for instilling a strong sense of collective efficacy, especially when individuals have been debilitated by fear and self-protective reactions that undermine their performance. Training programs designed to build mastery focus on developing coping skills and cultivating beliefs that individuals can control potential threats.

This becomes particularly important when people face situations requiring cooperation, altruism, or adaptation to group expectations. In such cases, fear intensifies unless adequate solutions or alternatives are available to enable mastery. Therefore, individuals must create environments in which even those with learning difficulties can succeed despite their challenges. This is achieved by offering a variety of mastery experiences.

Initially, threatening tasks are structured to demonstrate how to manage risk and disconfirm worst-case scenarios. Confrontational tasks are broken down into manageable steps that are easier to master. Performing these tasks alongside a therapist helps individuals with phobias carry out activities they would normally resist.

Another strategy to overcome resistance is time-limited exposure. Individuals are more willing to face threatening tasks for short periods rather than prolonged durations. As their coping efficacy increases during task performance, incremental exposure to stressors helps rebuild and enhance the sense of collective coping efficacy.

Subsequently, individuals can undergo self-directed mastery training designed to provide varied confirmatory experiences of their coping abilities within the context of collective efficacy. Once individuals develop a resilient sense of efficacy, they can endure difficulties and adversity without suffering harmful psychological effects. (A. Bandura et al., 2004, p. 51)

Literature review

Study by Wang and SJ Lin (2007) – China

Title: Effects of Group Composition on Self-Efficacy and Group Effectiveness in Computer-Assisted Cooperative Learning

The study by Wang and SJ Lin (2007) aimed to examine the effects of group composition on self-efficacy (high, low, and mixed levels) and its impact on group efficacy, cooperative learning behavior, and performance in a computer-assisted cooperative learning environment.

To achieve the study's objectives, the researchers developed a Group Efficacy Scale consisting of 34 items. After administering the scale to a sample of 115 students, the results revealed several findings:

Groups with high self-efficacy held stronger beliefs in collective efficacy than those with low self-efficacy. Moreover, high self-efficacy groups demonstrated more frequent use of high-level cognitive skills during group discussions compared to low self-efficacy groups, although no significant differences were found among the three groups regarding the use of low-level cognitive skills.

The study further indicated that collective efficacy had positive effects on group discussion behaviors and group performance. Students with higher collective efficacy not only used more advanced cognitive skills in group discussions but also achieved better academic outcomes. Additionally, the research emphasized that students' use of high-level cognitive skills in discussions positively influenced group performance.

(Wang, X. A., & Lin, S. J., 2007)

Study by Cankurtaran and Tikendal (2015) Turkey

Title: The Effect of Teamwork on the Self-Efficacy of Social Work Students

This study by Cankurtaran and Tikendal (2015) sought to examine the relationship between collective efficacy and cognitive competence among male social work students. To fulfill this objective, the researchers conducted a course-long observation of volunteer students, assessing their behavior through observation, insight, prediction, and self-awareness.

A pre-test/post-test comparison group design was implemented, and a Self-Efficacy Scale consisting of 28 items was used. The scale was administered to a sample of 46 students (12 in the pre-test group and 34 in the post-test group) over a six-week period.

Findings revealed that the post-test group demonstrated significantly higher levels of teamwork and collective efficacy compared to the pre-test group. (Cankurtaran, O. & Tikendal, O., 2015(

Study by Beker (2017) United Kingdom

Title: Enhancing Collective Effectiveness Through Meaningful Collaboration

The study by Beker (2017) aimed to investigate whether a relationship exists between task implementation and performance in the context of meaningful collaboration, and how this relates to levels of collective efficacy within a professional learning community.

The study also emphasized the integration of trust, dedication, and altruism among group members, and how time prioritization developed over approximately two months.

To assess this, the researcher developed a 10-item Collective Efficacy Scale. After administering the scale to a sample of 100 students, the results indicated that collective efficacy among the fourth-grade class team had improved as a result of engaging in purposeful collaboration activities.(Beker, E., 2017)

Study by Richardson and Wickes (2017) United States

Title: Collective Efficacy

The study by Richardson and Wickes (2017) aimed to evaluate the validity of Bandura's assumptions concerning the concept of collective efficacy through the study of group behavior rooted in psychological science. The research applied theoretical concepts to collective efficacy studies.

After administering measurement tools to a sample of 60 university students in Chicago, the findings demonstrated the development of collective efficacy research, transitioning from psychological theory to broader social science applications.

Applications were observed at the community level (such as criminology, public health, mental health, disaster recovery, activism, and policy engagement), as well as at the group/team level (such as family, sports), and in educational and workplace settings. A high level of collective efficacy was found among the participants. (Richardson, E. & Wickes, M., 2017).

Materials and Methods

The current research is based on the descriptive method, in which information and data are collected, then classified, analyzed, measured, and interpreted. This method is considered one of the systematic scientific approaches to analyze and interpret a specific phenomenon or problem. It provides a quantitative representation of the phenomenon by collecting standardized data and subjecting them to rigorous study. (Milhim, 2010: 370)

1. Research Population

The research population is defined as: "the total group of elements to which the researcher seeks to generalize the results relevant to the research problem" .(Odeh & Melkawi, 1992: 159(

The population of the current study consists of postgraduate students at the University of Wasit for the academic year 2023–2024, categorized according to gender, degree, and specialization, and distributed across scientific and humanities colleges. The total research population includes 1,269 postgraduate students.

1. The number of male students is 379, representing 30%,
2. The number of female students is 890, representing 70%.
3. The number of students in scientific disciplines is 835 (66%),
4. While 434 students (34%) belong to humanities disciplines.
5. The number of Master's students is 865 (68%),
6. And the number of Ph.D. students is 359 (32%).

Table 1: Distribution of Postgraduate Students by Degree, Specialization, and Gender

Degree	Specialization	Gender	Number	Subtotal
Master's	Scientific	Male	187	569
		Female	382	
	Humanities	Male	71	296
		Female	225	
	Total	Male	258	865
		Female	607	
Ph.D.	Scientific	Male	71	266
		Female	195	
	Humanities	Male	50	138
		Female	88	
	Total	Male	121	404
		Female	283	
Total	Scientific	Male	258	835
		Female	577	
	Humanities	Male	121	434
		Female	313	
	Total	Male	379	1,269
		Female	890	

Research sample: A sample was randomly selected with proportional distribution from the statistical community of the research (graduate students) distributed among the scientific and humanities colleges. The total number of the research sample was (295) male and female graduate students, representing (23%). The sample size was determined using the Stephen Thompson equation to calculate the sample size. Table (2) shows this:

Table (2) Research sample size according to degree, specialization, and gender

Certificate	Specialization	gender	Numbers	Total
Master	science	male	43	132
		feminine	89	
	humanitarian	male	17	69
		feminine	52	
	Total	male	60	201
		feminine	141	
PhD	science	male	17	62
		feminine	45	
	humanitarian	male	12	32

		feminine	20	
	Total	male	29	94
		feminine	65	
Total	science	male	60	194
		feminine	134	
	humanitarian	male	29	101
		feminine	72	
	Total	male	89	295
		feminine	206	

Research tools: Since the current research aims to measure the effectiveness of the group and measure the dependence on reward among graduate students and then find the relationship between these two variables, two scales with good psychometric properties were required. Two tools were built to measure the effectiveness of the group and the dependence on reward scale. The following are the procedures for constructing the scale the effectiveness of the group and the dependence on reward scale and the procedures for preparing them.

First: The Group Efficacy Scale

Procedures for Constructing the Group Efficacy Scale

After reviewing the literature related to this concept, the researcher adopted Bandura's theory (A. Bandura, 2004). This prompted the need to construct a scale suitable for the current context of postgraduate students at Wasit University. Accordingly, the researcher developed a tool to measure group efficacy that meets the necessary psychometric properties, as follows:

1. Defining the Theoretical Framework for Constructing the Group Efficacy Scale

The researcher based the scale on the following key theoretical concepts:

1. The scale is grounded in Albert Bandura's theory (2004).

2. Bandura defined group efficacy as: "The beliefs held by an individual when performing a task jointly with others." Based on this theoretical direction, the researcher formulated the following operational definition:

Group efficacy refers to students' beliefs in their abilities that motivate them to work collaboratively with others and influence them through active participation in learning and problem-solving during academic and instructional performance. It is reflected in a tendency toward group-oriented behavior.

3. The researcher relied on classical test theory in constructing the current scale, and thus the psychometric properties of the scale and its items were calculated in light of classical measurement indicators.

4. The scale was designed with five response alternatives based on a Likert-type format.

2. Drafting the Scale Items

After establishing the theoretical definition of group efficacy, the researcher formulated 30 items for the scale based on the theoretical model and the nature of the target population.

3. Response Alternatives

The researcher adopted a five-point scale to assess responses:

a) Applies to me to a very high degree

b) Applies to me to a high degree

c) Applies to me to a moderate degree

d) Applies to me to a low degree

e) Does not apply to me at all

Positively worded items are scored: (5-4-3-2-1), and negatively worded items are scored in reverse: (1-2-3-4-5).

4. Pilot (Exploratory) Study

An open questionnaire was distributed to students asking them to respond to the following prompt:

"Mention some specific situations that occurred today which made you feel discomfort, and three others that gave you a sense of reward."

The researcher obtained several useful responses, which aided in drafting the items.

5. Scale Instructions Preparation

To clarify the answering process, the researcher prepared clear instructions, informing participants that the study is for scientific research purposes only. Respondents were asked to answer honestly without skipping any item. The form also included fields for gender, specialization, and academic qualification.

6. Pilot Application

The scale was administered to a pilot sample of 60 students (male and female) randomly selected from two colleges at Wasit University. Results showed that all items and instructions were clear and understandable, with the average time to complete the scale being approximately 15 minutes.

7. Logical (Face) Validity Analysis of the Items

Face validity refers to the degree to which an item appears, at face value, to measure what it is intended to measure. While not sufficient on its own to confirm the test's validity, it provides initial reassurance to the researcher regarding the appropriateness of the tool.

(Al-Mahasneh & Abdul Hakim, 2013, p. 160)

After drafting the 30 items, the scale was presented to a group of experts in education and psychology to evaluate the clarity, appropriateness, and relevance of each item in measuring group efficacy. As a result, some items and response options were merged or reworded, and the scale was refined to include 28 items.

The items were then reviewed by 18 experts in educational and psychological sciences, who were asked to assess each item's validity. An item was considered valid when the Chi-square (One Sample Test) value was significant at 3.84 with a significance level of 0.05, corresponding to 100% agreement among the experts. Based on this, 28 items were retained, while two items (14 and 17) were eliminated, as shown in Table (3).

Table (3) Logical analysis of the paragraphs of the group effectiveness scale chi-Square Test Results for Item Validity

Items	Agreeing Experts	Disagreeing Experts	Calculated χ^2	Tabulated χ^2	Significance Level
1–2–3–4–5–6–7–8–9–10–11–12–13–15–16–18–19–20–21–22–23–24–25–26–27–28	18	0	18	3.84	Significant at 0.05 level
14, 17	12	6	1	3.84	Not significant

Statistical Analysis of the Scale Items

The quality of a scale item and its validity—both in terms of how well it represents the intended content and how appropriate it is for the respondent's level—can only be ensured through statistical analysis of the items. This involves distinguishing between individual differences in responses among the upper and lower groups. Naturally, it is expected that the difference between these groups is statistically significant for an item to be considered discriminative. Therefore, any item that fails to show such discriminative ability is considered invalid (Al-Yaqubi, 2013: 100).

To retain the most effective and discriminative items in the Group Efficacy Scale, and to eliminate those lacking in distinction, the discriminatory power of each item was calculated by applying the scale to a sample of 196 male and female students, as previously mentioned. Accordingly, the method of extreme groups (also known as upper-lower group comparison), and the internal consistency method (correlation of item score with total score) were employed as appropriate procedures for item analysis (Najm et al., n.d., p. 107).

- **Method of Extreme Groups**

The researcher applied the scale to the analysis sample of 196 students. After correcting the questionnaires and calculating the total score for each form, the forms were ranked from highest to lowest. Then, 27% of both the upper and lower groups were selected, resulting in 53 participants in each group.

After calculating the mean and standard deviation for each item in both groups, the researcher applied the independent-samples t-test to determine the significance of the differences between the group means. The calculated t-value represents the discriminative power of each item between the two groups (Myers, 1990: 35).

The calculated t-value for each item was compared with the tabulated t-value of 1.96 at a significance level of 0.05 and degrees of freedom equal to 104. Based on this criterion, all items were found to be statistically significant in distinguishing between groups. As a result, the number of valid and retained items in the scale became 28 items, as shown in Table (4).

Table (4) T-values for the items of the group effectiveness scale for the test. Significance of the differences between the upper and lower groups

No	Higher		Lower		Calculated T	Difference Significance
	Arithmetic Mean	Standard Deviation	Arithmetic Mean	Standard Deviation		
1.	4.58	0.75	3.62	1.13	5.17	Significance
2.	4.62	0.69	3.94	0.86	4.48	Significance
3.	4.02	1.07	3.40	1.20	2.83	Significance
4.	3.70	1.48	3.00	1.39	2.51	Significance
5.	3.87	0.98	2.87	1.41	4.23	Significance
6.	3.70	1.32	2.98	1.37	2.74	Significance
7.	4.49	0.70	3.36	1.30	5.58	Significance
8.	4.47	0.87	3.34	1.13	5.80	Significance
9.	3.98	1.08	3.42	1.06	2.71	Significance
10.	4.72	0.82	3.28	1.15	7.40	Significance
11.	3.98	1.35	2.49	1.41	5.56	Significance
12.	3.81	1.21	2.96	1.19	3.64	Significance
13.	4.89	0.32	4.04	1.26	4.77	Significance
14.	4.21	0.99	3.25	1.28	4.32	Significance
15.	4.26	1.15	3.17	1.07	5.08	Significance
16.	4.77	0.61	3.96	1.21	4.37	Significance
17.	4.66	0.76	3.79	1.01	5.01	Significance
18.	4.85	0.41	3.62	1.21	6.97	Significance
19.	4.38	0.90	3.47	1.31	4.14	Significance
20.	4.38	1.21	3.57	1.23	3.42	Significance
21.	4.55	0.95	3.70	1.28	3.88	Significance
22.	4.51	0.91	3.40	1.38	4.91	Significance
23.	4.96	0.19	3.36	1.19	9.65	Significance
24.	4.87	0.34	3.77	1.17	6.53	Significance
25.	4.26	1.02	2.81	1.24	6.58	Significance

26.	4.42	1.23	2.34	1.41	8.06	Significance
27.	4.38	1.18	3.43	1.20	4.08	Significance
28.	4.55	0.89	3.36	1.23	5.71	Significance

A- Validity of the paragraphs: The researcher used Pearson's correlation coefficient (Abu Jalala, 1999, 108) to calculate the validity of the paragraph. Anastasi indicated that the paragraph is related to an internal or external criterion that indicates its validity, and when there is no suitable external criterion, the respondent's total score represents the best internal criterion in calculating this relationship (Anastasi, 2000: 206). The researcher calculated the validity of the paragraphs by calculating the correlation coefficients as follows:

First: The relationship between the item score and the total score of the scale: Ferguson believes that the higher the item's correlation coefficient with the total score of the scale, the greater the probability of its classification in the scale (Ferguson, 1991: 629). This score was extracted using the Pearson correlation coefficient. After comparing the calculated value of the correlation coefficient with the tabular value of the correlation coefficient (0.13) and with a degree of freedom (194) at a significance level of (0.05), it was found that all items of the group effectiveness scale were statistically significant. Thus, the number of items became (28) items. Table (5):

Table (5) Correlation values of the paragraph score with the total score of the group effectiveness scale

No	Correlation values	T for correlation significance	Paragraph number	Link values	T-correlation values
1.	0.45	7.09	**15.**	0.44	6.84
2.	0.37	5.65	**16.**	0.64	11.75
3.	0.39	5.97	**17.**	0.46	7.17
4.	0.20	2.89	**18.**	0.59	10.12
5.	0.57	9.71	**19.**	0.37	5.65
6.	0.21	3.07	**20.**	0.40	6.06
7.	0.58	9.89	**21.**	0.59	10.15
8.	0.50	8.15	**22.**	0.56	9.34
9.	0.37	5.65	**23.**	0.79	18.04
10.	0.51	8.37	**24.**	0.58	9.89
11.	0.53	8.73	**25.**	0.44	6.84
12.	0.28	4.08	**26.**	0.53	8.73
13.	0.62	11.06	**27.**	0.30	4.32
14.	0.45	7.09	**28.**	0.37	5.65

Psychometric Properties of the Scale

1. Scale Validity

Two indicators of validity were extracted for the Group Efficacy Scale:

a) Face Validity

The best method to verify face validity is to have a group of experts and specialists in psychology evaluate how well the items represent the construct being measured (Eble, 1972: 69). Accordingly, the scale was reviewed by a group of experts in educational and psychological sciences who confirmed that each item was appropriate for measuring the intended construct.

b) Construct Validity

This is considered the most representative type of validity and refers to the extent to which a psychological scale measures a specific hypothetical construct or psychological concept (Majid & Hamid, 2011: 98). The researcher ensured construct validity by eliminating non-discriminative items and retaining those that were discriminative.

2. Scale Reliability

Reliability provides an indication of the scale's accuracy and internal consistency. The scale yields approximately the same results when measuring the same characteristic repeatedly (Eble & Frisbie, 1991: 261).

To calculate reliability, the 28-item scale was administered to a random sample of 196 students from the College of Education for Pure Sciences at the University of Wasit. Reliability was assessed using two methods:

a) Cronbach's Alpha (Internal Consistency Coefficient)

According to Nunnally (1978), Cronbach's alpha provides a good estimate of reliability across all situations (Nunnally, 1978: 230). The reliability coefficient obtained through this method was 0.85.

b) Test-Retest Method

The researcher re-administered the scale to the same sample after 14 days. The Pearson correlation coefficient between the two sets of scores was calculated, yielding a value of 0.72, which indicates good reliability.

3. Final Description of the Group Efficacy Scale

The Group Efficacy Scale consists of 28 items formulated using both positively and negatively worded verbal statements. The responses are based on a five-point Likert scale:

(Very Strongly Applies to Me, Strongly Applies to Me, Moderately Applies to Me, Slightly Applies to Me, Does Not Apply to Me at All).

Items aligned with the construct were scored as (5, 4, 3, 2, 1). Thus, the maximum possible score on the positively worded items was 140, and the minimum was 28, with a theoretical mean of 84.

Reward Dependence Scale

To construct the Reward Dependence Scale, the researcher based the work on Corr's theory (Corr, 2000).

a) Defining the Concept of Reward Dependence

After reviewing the relevant literature, the concept was defined according to Corr (2000), who described reward dependence as a behavior regulated by three systems:

The first system activates behavior when sensitive to reward cues;

the second, behavioral inhibition, responds to cues of punishment, non-reward, or the absence of reward;

the third, the fight-flight-freeze system, is sensitive to the need to flee from sources of punishment (flight) or respond with defensive aggression (fight).

Based on Corr's theoretical framework (Corr, 2001), the researcher conceptualized reward dependence as:

"An action performed by an individual aiming to fulfill reinforcement needs depending on the situation, context, and acceptance level in overcoming a problem or obstacle in its cognitive, social, or material dimensions. It functions through three systems: activation, inhibition, and avoidance."

In light of this, three domains of reward dependence were identified:

1. Behavioral Activation System (BAS): 6 items
2. Behavioral Inhibition System (BIS): 6 items
3. Fight-Flight-Freeze System (FFFS): 6 items

b) Item Validity

The same steps followed in constructing and validating the Group Efficacy Scale were applied here. The preliminary scale was reviewed by a panel of psychology experts. Only items that received a 100% agreement rate were retained, resulting in a final total of 18 items.

c) Alternative Responses

The researcher provided five response options for each item:

(Very Strongly Applies to Me, Strongly Applies to Me, Moderately Applies to Me, Slightly Applies to Me, Does Not Apply to Me at All).

Items aligned with the construct were scored as (5–4–3–2–1).

d) Pilot Study

A pilot application was conducted to ensure clarity of instructions, items, and estimated response time, and to verify the appropriateness of the response scale. The scale was administered to a sample of 60 students from the College of Law at the University of Wasit. The instructions, items, and response options were found to be clear, and the time required to complete the scale was appropriate, averaging 20 minutes. Scores for positive items ranged from (5–1), and for negative items from (1–5).

e) Statistical Analysis of Items

The goal of this analysis was to retain discriminative items and remove non-discriminative ones. The 18 items were subjected to statistical analysis with a sample of 196 students.

f) Item Discrimination Index Calculation

Using the 27% cut-off point, the upper group consisted of 53 participants and the lower group also consisted of 53 participants.

For each item, means, standard deviations, and t-values were computed for both groups. By comparing the calculated t-values with the tabulated t-value (1.96) at a degree of freedom of 104 and a significance level of 0.05, all 18 items were retained, Table (6) presents these results.

Table (6) T-values for the items of the reward dependence scale for the test. Significance of the differences between the upper and lower groups

No	Higher		Lower		Calculated T	Difference Significance
	Arithmetic Mean	Standard Deviation	Arithmetic Mean	Standard Deviation		
1.	4.66	0.96	1.45	0.50	21.56	Significance
2.	5.00	0.00	1.25	0.43	62.93	Significance
3.	4.79	0.63	3.28	1.25	7.87	Significance
4.	4.68	0.58	3.60	1.06	6.47	Significance
5.	4.45	0.80	2.42	0.91	12.27	Significance
6.	3.58	1.62	3.04	1.14	2.01	Significance
7.	3.96	1.40	2.68	1.34	4.82	Significance
8.	3.51	1.22	2.87	1.48	2.43	Significance
9.	4.77	0.47	2.38	0.95	16.56	Significance
10.	4.94	0.23	2.75	1.07	14.52	Significance
11.	4.47	0.80	2.68	1.03	9.99	Significance

12.	4.96	0.19	2.47	1.10	16.20	Significance
13.	4.38	0.99	2.34	1.27	9.23	Significance
14.	3.87	1.07	2.43	1.25	6.34	Significance
15.	4.96	0.19	3.19	1.29	9.92	Significance
16.	4.57	0.67	2.45	1.28	10.67	Significance
17.	4.42	0.82	2.49	0.99	10.89	Significance
18.	4.91	0.30	3.06	0.97	13.29	Significance

B- Correlation of the paragraph with the total score of the reward dependence scale: To verify this, the researcher used Pearson's correlation coefficient to calculate the relationship between the paragraph score and the total score of the scale. It became clear that all correlation coefficients of the paragraph score with the total score of the scale were statistically significant at a significance level of (0.05) and a degree of freedom of (194). Table (6) illustrates this:

C- Correlation of the paragraph with the total score of the domain to which it belongs: C- Pearson's correlation coefficient was used, as the correlation coefficients between the score of each paragraph and the domain to which it belongs. It became clear from the statistical analysis that all values of the correlation coefficients of the paragraph score with the total score of the domain to which it belongs were statistically significant at a significance level of (0.05) and a degree of freedom of (194). Table (6) shows this:

D- The relationship of each field to the other field and the total score of the scale: After comparing the calculated correlation coefficient value with the tabular value of the correlation coefficient, which was (0.13) at a significance level of (0.05), all fields had a relationship with the other field and the total score of the scale. Table (7) shows this.

Table (7) shows the relationship of the paragraph to the total score, the relationship of the paragraph to the field, the relationship of the field to the total score, and its t-values for the scale for the scale of dependence on reward

Paragraph number	Correlation coefficient values				T-values for correlation significance			
	Behavioral activation system	Behavioral inhibition system	Fight-flight-freeze system	Reward	Behavioral activation system	Behavioral activation system	Fight-flight-freeze system	Reward
1	0.75			0.74	16.02			15.50
2	0.61			0.60	10.64			10.55
3	0.66			0.50	12.14			8.17
4	0.52			0.47	8.61			7.50
5	0.59			0.62	10.28			11.06
6	0.41			0.28	6.31			4.05

Behavioral inhibition system		**0.75**	**0.76**	**0.63**		**15.78**	**16.27**	**11.39**
7		0.54		0.38		8.94		5.75
8		0.34		0.32		5.03		4.76
9		0.53		0.59		8.82		10.10
10		0.66		0.62		12.17		11.01
11		0.65		0.47		11.97		7.50
12		0.76		0.73		16.22		15.09
Behavioral inhibition system	**0.75**		**0.66**	**0.58**	**15.78**		**12.14**	**9.92**
13			0.62	0.53			11.12	8.73
14			0.67	0.58			12.50	9.97
15			0.80	0.70			18.35	13.57
16			0.71	0.65			14.04	11.94
17			0.74	0.66			15.40	12.14
18			0.73	0.72			15.09	14.40
Fight-flight-freeze system	**0.76**	**0.66**		**0.80**	**16.27**	**12.14**		**18.47**
Reward	**0.63**	**0.58**	**0.80**		**11.39**	**9.92**	**18.47**	

Psychometric Properties of the Reward Dependence Scale

A. Scale Validity:

The researcher extracted the following types of validity:

1. Face Validity:

Face validity indicators of the current scale were verified through the expert judgment procedures described in previous sections.

2. Construct Validity:

Construct validity indicators of the current scale were obtained using the method of internal consistency, as follows:

Scale Reliability

To calculate the reliability coefficient, the researcher applied Cronbach's alpha method for internal consistency. After administering the scale to the analysis sample consisting of 196 male and female students, the Cronbach's alpha coefficient was found to be 0.891.

As for test-retest reliability, the scale was re-administered, and the resulting reliability coefficient was 0.821.

Final Description of the Reward Dependence Scale

In its final version, the Reward Dependence Scale was deemed suitable for application. It consists of 18 items, and the respondent's total score is obtained by summing the scores of all individual items. Accordingly, the maximum score a respondent can obtain is 90, while the minimum score is 18, with a theoretical mean of 54.

Final Application

After constructing the Group Efficacy Scale and the Reward Dependence Scale, and establishing the relationship between them, the researcher administered the instruments to a research sample of 408 postgraduate students at the University of Wasit, distributed across both genders.

The administration period lasted 37 days, beginning on Sunday, December 8, 2024, and concluding on Tuesday, January 7, 2025.

The researcher distributed the scales in batches, in coordination with the university administration and the Graduate Studies Division.

Statistical Methods

The Statistical Package for the Social Sciences (SPSS) was used for data analysis in the social and psychological sciences.

Chapter Four: Presentation and Discussion of Results

First: Identifying Group Efficacy among Postgraduate Students at the University of Wasit

The results of the research, after administering the Group Efficacy Scale to a sample of 295 postgraduate students (male and female) at the University of Wasit, showed a mean score of 202.43 and a standard deviation of 44.71.

To determine the significance of the difference between the sample mean and the theoretical mean of the scale (84), a One-Sample T-Test was used.

The result revealed a statistically significant difference, as the calculated t-value (49.45) was greater than the tabulated t-value (1.96) at a significance level of 0.05 and 294 degrees of freedom.

This indicates the presence of statistically significant differences between the actual and theoretical means, suggesting that postgraduate students exhibit a high level of evaluative thinking, table (8) illustrates these results.

Table (8) T-test for the difference between the sample mean and the theoretical mean of the group effectiveness scale

Sample	Arithmetic mean	Standard deviation	Hypothesized mean	One-sample t-test		Df	Significance level
				tabular	calculation		
295	**202.43**	**44.71**	**84**	**45.49**	**1.96**	**294**	**0.5** Significance

This result is explained in accordance with the theory adopted in the current research by Bandura, who summarized it as an individual's ability to make accurate self-predictions about their ability to perform certain tasks and activities and to predict the extent of effort and perseverance required to achieve that task and activity. Those who experience successful models can use these observations to assess their own effectiveness, while emphasizing the development of a belief in high effectiveness and collective effectiveness. The researcher can explain the result by stating that graduate students share common beliefs about collective effectiveness and mutual influence in collaborative activity situations. Furthermore, this result indicates the presence of self-efficacy within each of them, represented by the individual's ability to believe in their abilities and the possibility of utilizing them and influencing the collective situation. They also feel a sense of participation in the educational situation, which led them to increase their group effectiveness by virtue of their nature and their identities in the academic community. Furthermore, the tasks awaiting them, based on their specialization, led to a strengthening of their sense of identity and belonging, which in turn enhanced many positive qualities that, in turn, increased their sense of group effectiveness, such as a sense of team spirit. This result is consistent with the study by Cankurtaran and Tikendal (2015), Becker (2017), and Richardson and Wickes (2017).

The second objective: To identify statistically significant differences in the collective efficacy of graduate students at the University of Wasit according to gender (male or female) and specialization (scientific or human).

To achieve this objective, the arithmetic means and standard deviations of the sample members' scores on the collective efficacy scale were calculated according to the variables of gender and specialization, as shown in Table (9).

Table (9) Arithmetic means and standard deviations of the sample members' scores on the group effectiveness scale according to the variables of gender and specialization

Degree	Specialization	Gender	Mean	Standard Deviation	Number
Master	Science	Males	194.33	53.20	43
		Females	166.43	17.11	89
		Total	175.52	35.72	132
	Humanities	Males	192.76	26.40	17
		Females	200.96	29.44	52
		Total	198.94	28.76	69
	مجموع الماجستير		183.56	35.23	201

PhD	Science	Males	243.12	4.87	17
		Females	262.82	6.39	45
		Total	257.42	10.69	62
	Humanities	Males	263.58	1.88	12
		Females	184.95	34.38	20
		Total	214.44	47.14	32
	Total		242.79	35.14	94
Total	Science		201.69	48.67	194
	Humanities		203.85	36.10	101
	Males		212.69	47.50	89
	Females		198.00	42.82	206

To identify the significance of the differences in the scores of the sample members in the group effectiveness scale according to the gender and specialization variables and the interaction between these two variables, the three-way ANOVA was used, and the results appeared as in Table (10):

Table 10: Results of a two-way analysis of variances in the scores of sample members on the group effectiveness scale according to the variables of gender and specialization

Sources of Variance	Sum of Squares	DF	Mean Squares	Computed f-value	Significance
Certificate	122345.33	1	122345.33	156.29	.000
Specialization	1825.99	1	1825.99	2.33	.128
Gender	18911.86	1	18911.86	24.16	.000
Certificate * Specialization	24986.11	1	24986.11	31.92	.000
Certificate * Gender	4706.75	1	4706.75	6.01	.015
Specialization * Gender	11850.19	1	11850.19	15.14	.000
Certificate * Specialization * Gender	55279.71	1	55279.71	70.62	.000
Error	224662.41	287	782.80		
Total	587806.33	294			

Significant Values in Group Efficacy:

1. The calculated F-value for the degree variable was 156.29, which is greater than the tabulated F-value of 3.84, indicating statistically significant differences. This suggests that postgraduate students differ in their use of group efficacy based on their degree, in favor

of PhD students, as they tend to engage more in activities characterized by effective gathering and interaction due to their greater experience.

2. The calculated F-value for the gender variable was 24.16, which is higher than the tabulated F-value of 3.84, indicating statistically significant differences in favor of male students. This may be attributed to the nature of male students in the university environment, as they tend to engage more strongly and comprehensively in group participation, expression of opinion, and activity performance with greater confidence, preferring to undertake tasks based on their perceived role seriously and actively. As a result, they tend to feel more entitled to greater outcomes compared to female students.

3. The calculated F-value for the interaction between degree and major was 31.92, which exceeds the tabulated F-value of 3.84, indicating statistically significant differences. This means that there is a significant interaction effect between degree and academic major in terms of group efficacy.

4. The calculated F-value for the interaction between degree and gender was 6.01, which is higher than the tabulated F-value of 3.84, indicating statistically significant differences. This implies that there is a significant interaction between degree and gender (male–female students) in group efficacy.

5. The calculated F-value for the interaction between major and gender was 15.14, which is greater than the tabulated F-value of 3.84, indicating statistically significant differences. This suggests that there is a significant interaction between major and gender (male–female students) in group efficacy.

6. The calculated F-value for the interaction among degree, major, and gender was 31.92, which is also greater than the tabulated F-value of 3.84, indicating statistically significant differences. This suggests that there is a significant three-way interaction among degree, major, and gender (male–female students) in group efficacy.

Non-Significant Value in Group Efficacy:

As for the findings from the Three-Way ANOVA, the researcher found that the following value was non-significant:

- The calculated F-value for the major variable was 2.33, which is lower than the tabulated F-value of 3.84, indicating that the difference is not statistically significant. This implies that there is no significant difference in group efficacy among postgraduate students based on their academic major (scientific or humanities). This may be due to the fact that their enthusiasm and engagement in communication and academic content are aligned, and their cultural and intellectual orientations contribute to a shared understanding and appreciation of group efficacy regardless of major.

Third Objective: Determining Reward Dependence among Postgraduate Students at the University of Wasit

To achieve the third objective, the researcher calculated the mean score of reward dependence among the main research sample of 295 postgraduate students.

Using a one-sample t-test, the researcher examined the significance of the difference between the calculated mean and the theoretical mean table (11) presents these results.

Table (11) T-test for the difference between the sample mean and the theoretical mean for the reward dependence scale

Sample	Arithmetic mean	Standard deviation	Hypothesized mean	One-sample t-test		Df	Significance level
				tabular	calculation		
295	67.13	14.58	54	15.47	1.96	**294**	**0.5**Significance

The results explain that graduate students exhibit reward-dependent behavior. This can be attributed to the nature of students' needs and to their behavioral reinforcement, driven by a desire to obtain immediate reinforcements. They also rely on their need to overcome barriers of safety and successfully complete all stages of their studies. Therefore, they avoid punishment, avoid experiencing failures that contribute to poor academic achievement, and overcome their academic ordeal. This is explained by the theoretical mechanism that explains that the behavioral activation system is sensitive to signals indicating reward, while the behavioral inhibition system is sensitive to signs of punishment and to the lack of reward or reward. Finally, the fight-or-flight systems are sensitive to the need to quickly escape sources of punishment (flight) and defensive aggression (fight).

Fourth Objective: To identify statistically significant differences in reward dependence among graduate students at the University of Wasit according to gender (male or female students) and specialization (scientific or humanities). To achieve this goal, the arithmetic means and standard deviations of the sample members' scores on the Reward Dependence Scale were calculated according to gender and specialization variables, as shown in Table12 .

Table 12: Arithmetic means and standard deviations of the sample members' scores on the Reward Dependence Scale according to gender and specialization variables

Certificate	Specialization	Type	Average	Standard Deviation	Number
Master	Science	Males	67.21	18.37	43
		Females	78.42	2.57	89
		Total	74.77	11.85	132
	Humanities	Males	74.12	5.06	17
		Females	70.12	8.82	52
		Total	71.10	8.21	69
	Total		73.51	10.86	201
PhD	Science	Males	52.53	1.01	17
		Females	48.42	2.16	45
		Total	49.55	2.65	62
	Humanities	Males	42.25	1.29	12
		Females	72.45	12.86	20
		Total	61.13	17.96	32
	Females		53.49	11.94	94
Females	Science		66.71	15.38	194

	Humanities	67.94	12.94	101
	Males	62.36	16.68	89
	Females	69.19	13.09	206

To identify the significance of the differences in the scores of the sample members on the reward dependence scale according to the variables of gender and specialization, and the interaction between these two variables, a three-way ANOVA was used. The results appeared as shown in Table (13):

Table (13) Results of the two-way ANOVA for the differences in the scores of the sample members on the reward dependence scale according to the variables of gender and specialization

Sources of Variance	Sum of Squares	DF	Mean Squares	Computed f-value	Significance
Certificate	16843.59	1	16843.59	214.81	.000
Specialization	467.02	1	467.02	5.96	.015
Gender	3391.26	1	3391.26	43.25	.000
Certificate * Specialization	701.17	1	701.17	8.94	.003
Certificate * Gender	1091.32	1	1091.32	13.92	.000
Specialization * Gender	1115.71	1	1115.71	14.23	.000
Certificate * Specialization * Gender	7499.64	1	7499.64	95.64	.000
Error	22504.22	287	78.41		
Total	62501.11	294			

Table (13) shows the following: Values indicating reliance on rewards:

1- The calculated p-value for the certificate variable was (214.81), which is greater than the tabular p-value of (3.84), indicating the presence of statistically significant differences. This indicates that graduate students differ in their use of reliance on rewards based on their certificates, in favor of master's degrees, as they have little experience entering graduate studies.

2- The calculated p-value for the specialization variable was (5.96), which is greater than the tabular p-value of (3.84). This indicates a lack of statistical significance for graduate students in their reliance on rewards, in favor of the humanities specialization. The researcher attributes this reason to the fact that their specialization provides greater insight into matters requiring assistance and immediate reinforcement without delay or procrastination than the scientific specialization, which is characterized by inferential assessments. 3- The calculated p-value for the gender variable was (43.25), which is greater than

the tabular p-value of (3.84), indicating the presence of statistically significant differences in favor of females. This is because female students in the university community tend to seek rewards in an emotional and affective manner, drawing attention away from the academic role they play, compared to male students who are often reserved and avoid demanding them. 4- The calculated p-value for the interaction between the degree and specialization variables was (8.94), which is greater than the tabular p-value of (3.84), indicating the presence of statistically significant differences. This means that there is an interaction between both degree and specialization in terms of reliance on rewards. 5. The calculated p-value for the interaction between the degree and gender variables was (13.92), which is greater than the tabular p-value of (3.84), indicating the presence of statistically significant differences. This means that there is an interaction between each of the degree and gender (male students - female students) in reliance on rewards.

6. The calculated p-value for the interaction between the specialization and gender variables was (14.23), which is greater than the tabular p-value of (3.84), indicating the presence of statistically significant differences. This means that there is an interaction between each of the specialization and gender (male students - female students) in reliance on rewards.

7. The calculated p-value for the interaction between the degree, specialization, and gender variables was (95.64), which is greater than the tabular p-value of (3.84), indicating the presence of statistically significant differences. This means that there is an interaction between each of the degree, specialization, and gender (male students - female students) in reliance on rewards. 8- Fifth: The relationship and difference between collective effectiveness - depending on the reward among graduate students at Wasit University according to the gender variable (male students - female students) and specialization (scientific - humanities). To achieve this goal, Pearson's correlation coefficient was used to calculate the correlation coefficient between the total scores obtained by the sample members of the research results on each of the two scales and their t-values. The researcher also used the Z-test for the two independent samples to identify the significance of the differences in the relationship between collective effectiveness and reliance on reward according to the gender and specialization variables. The results showed that there are no statistically significant differences in the difference between the certificate (master's doctorate), as the calculated Z-value reached (-1.64) degrees. The results showed that there are differences in the relationship between gender (male and female students), as the calculated Z-value reached (-2.81) in favor of females. The results showed that there are differences in the relationship between specialization (scientific and humanities), as the calculated Z-value reached (-5.27) in favor of the scientific specialization. The table shows that there are differences in the relationship between specialization (scientific and humanities), as the calculated Z-value reached (-5.27) in favor of the scientific specialization. (14) This explains it.

Table (14) The difference in the relationship between group effectiveness and reliance on reward according to certificate, specialization and gender

Sample	No	The relationship between collective effectiveness and reward dependence	T for correlation	Z values corresponding to correlation	Fisher
All Sample	295	-0.592	-15.93	-0.678	
Master	201	-0.211	-3.06	-0.213	-1.46
PhD	94	0.033	0.32	0.030	

Male	**89**	**-0.474**	**-5.08**	**-0.510**	**-2.81**
Female	**206**	**-0.702**	**-14.15**	**-0.867**	
Scientific	**194**	**-0.731**	**-14.92**	**-0.929**	**-5.27**
Humani-ties	**101**	**-0.279**	**-2.92**	**-0.282**	

The result is explained by the presence of a weak and superficial relationship, as it is a negative relationship, meaning that the more the collective orientation towards the effectiveness of the group is present, the less the reward is offered, and it can be attributed to cases of competition between graduate students away from showing behavior that reduces their value in offering assistance and seeking reward, and the less the effectiveness of the group, the more the behavior of relying on reward is present and it can be individual and personal.

Conclusions

Based on the findings of the current research, the researcher concludes the following:

1. Postgraduate students engage in group efficacy behaviors in a thoughtful, effective, productive manner across various aspects of their academic, practical, and material lives.

2. The sample understands reward dependence through activities that require significant effort, such as competition, uniqueness, excellence, and cooperation—treating these behaviors as integral parts of their identity.

3. PhD holders demonstrate a distinctive strategy in utilizing group efficacy to a greater extent than Master's degree holders.

4. There is no significant difference between academic majors (scientific and humanities) in interpreting group efficacy behavior. Both groups exhibit competitiveness, competence, enthusiasm, and motivational persistence.

5. Male students show a higher level of group efficacy, as their social sphere is often seen as proprietary, characterized by productivity, recognition, and a willingness to assist others.

6. Postgraduate students generally show a strong tendency toward reward dependence.

7. Students from humanities majors exhibit a higher level of reward dependence than those in scientific majors.

8. Female students show a higher degree of reward dependence, as their social sphere and group behavior—characterized by helpfulness, altruism, and cooperation—require them to act in this way.

9. Master's degree holders demonstrate a higher level of reward dependence than PhD students.

10. There is an inverse relationship between group efficacy and reward dependence:

The higher the group efficacy, the lower the reliance on rewards—and vice versa: the lower the group efficacy, the more the individual tends to rely on rewards personally and independently.

Recommendations

In light of these findings, the researcher recommends the following:

1. Organize seminars and specialized workshops led by researchers to scientifically explain and promote the experience of group efficacy among undergraduate students.

2. Introduce curriculum content at the university level related to reward dependence and the concepts of immediate and delayed reinforcement.

Suggestions for Future Research

In continuation of the current research findings, the researcher suggests the following:

1. Conduct a study to examine the relationship between group efficacy and playful intelligence among different samples.

2. Conduct a study exploring the relationship between generativity, job flow, and reward dependence among administrative teaching staff.

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