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THE ROLES OF DECISION MAKING AND EMPOWERMENT IN JORDANIAN WEB-BASED DEVELOPMENT ORGANISATIONS

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This study aims to explore how empowerment is enabled in Web-based project teams. It also aims to identify differences in empowering practices and levels of individual empowerment in different types of Web-based project development methods. The point of departure is the assumption that the relationships between two important disciplines in Web-based project development, which are the Web-based project development methods and empowerment, are not clear in industrial Web-based projects. Through a survey of data that collected from 123 Web-based projects in Jordan, the study assesses whether there is a difference in empowerment in different types of Web application development methodologies. The findings show that the level of participation in decisions and empowerment differ in Web-based project development teams and there are clear signs that this can be attributed to different organizations and the methodologies chosen. The implications of these findings are discussed and suggestions for future research are identified and proposed.

Keywords: Empowerment; Decision Making; Web Projects; Development Methodology.
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1 Introduction

The rapid growth in industry of information technology imposes enrichment software development process so the software project is to be completed within a certain constraints of scope, time, and cost [1]. Today's most modern software engineering methodologies use innovative approaches and latest tools [2]. Application development methodologies have been in use for the past twenty years and constitute a core part of modern software engineering [3]. Appropriate development methodologies are presumed to help developers not only in the design and solutions but also in how projects are organized what tasks to priorities, and what tasks to select in the daily work [4]. However development methodologies represent a thorny issue, because their effectiveness has been challenged and because of the continuous wars between proponents of different methods [4].

This is currently also an influential trend in Web application development organizations as seen with the adoption of traditional plan-driven and agile methodologies that are widely used in Web application development like Waterfall [5], extreme programming [3], and others. Web application projects have an array of unique characteristics which are different from those found in traditional software development projects [6,7]. These characteristics tend to allow participants to derive a sense of empowerment. However, in the absence of theoretical or empirical work examining empowerment in Web-based project, we argue that team empowerment may be more important to the Web-based

project teams than it is to the traditional software teams because of the unique nature characteristics of the Web-based project.

Empowerment has a wide context and it can be viewed through different dimensions and perspectives. It can be seen as the positively valued feelings that an individual may derive directly from his or her cognitions about him- or herself in relation to the task. Empowerment can also be viewed as an individual's approach to proactive work orientation, thereby increasing the employee's achievement and effectiveness [8].

The other perspective, which is the focus of the current study, considers empowerment as "a practice, or set of practices involving the delegation of responsibility down the hierarchy so as to give employees increased decision-making authority in respect to the execution of their primary work tasks"[9]. From this selected perspective, we may conclude that empowerment can be defined as a process whereby groups or individuals are capable to exercise their capability and ability to understand, interpret the problems faced, and later on identify the needs, and to convert these into an action process by participating in decision making to decide, change, request, negotiate and participate in performing activities.

Web-based development methods and empowerment are two important issues in web-based project development. The relationship between these two issues is not clear in industrial Web-based projects. An exploration of the relationship between empowerment and development methodologies may help resolve the inconsistencies mentioned above. This paper aims to:

1. Explore how empowerment for the developer is enabled in different types of Web-based project development methods.
2. Explore to what extent the individual developer is empowered
3. Determine whether there is a difference between different types of Web-based project development methods regarding decision making.

We believe that achieving these goals will lead to enrich the Web-based software development process with new property that leads to speed up the developing of a Web-based software process.

The remainder of the paper is organized as follows: Section 2 presents background material on empowerment and how it is studied in general, and it continues with an overview of some researches that has been conducted on this issue within the software development literature. In section 3, the arguments that supporting our study are presented, and statement of hypotheses are formulated. In sections 4, we describe the research methodology and present data analysis results. Finally, the paper ends with results discussions, limitations and implications for theory and practice.

2 Background literatures

During the past few decades, empowerment has been widely studied in different work groups or environments. Prior to 1990, empowerment was mainly studied from a sociological perspective [10]. Managers believed that treating their employees in a humanitarian manner would generate benefits to the company [11]. This approach to employee empowerment focused on the transfer of power and authority, and emphasized the act of granting power to an employee [12]. However, such empowerment took place within the context of a strict management agenda: "It is employers who decide whether and how to empower employees."[13]

Empowerment emerged in its modern form in the late 1990s. Wageman in "self-managing teams" [14] laid the foundations for the modern empowerment movement [10] as organizations pursued advantage in an increasingly competitive global economy [15]. Bureaucratic models, in which creativity was decreased and workers felt alienated, changed to simpler, perceptive styles of management in which organizations became more flexible, innovative, and reactive [10]. Supervisors and managers were encouraged to treat their employees as equals, to value their input, and to trust the ability of employees to use their judgment in implementing tasks [13]. It means that, employees were given greater flexibility in their workplaces. The basic view was to get workers to do what needs to be done rather than doing what they're told by creating opportunities to develop feelings of self-efficacy and by removing conditions that contributed to feelings of powerlessness [13]. Wilkinson et al. [9] emphasizes that among the structural factors that enable empowerment is first of all power, as also structures for giving employees access to relevant information for decision making, and enabling them to do their job by providing means to increase the worker's knowledge.

Several authors argue that not only structural empowerment is necessary in order to achieve the benefits searched for [16, 17]. Particularly, they claim that psychological attributes like an individual's awareness of personal control, understanding of the social context or organization are essential. They base their perspectives on Thomas and Velthouse [18], who described the concept of psychological empowerment as consists of the following types: cognitions: meaningfulness, competence, self-determination and impact. Meaningfulness is the employee's awareness of the value of the work done. Competence is the employee's belief in his or her own capability to do a job well. Self-determination is the awareness of autonomy at work. Impact is the employee's awareness of being able to influence the workplace.

Empowerment has a long tradition in practice and research, and there is a large literature describing the effects of empowerment in different types of organizations. Some studies on empowerment have examined its direct effects on behavior outcomes in traditional organizational contexts. For instance, Gvaramadze [19] examined the contribution of empowerment on work effectiveness, work satisfaction, and job related stress. Also, Calvin [20] investigated the effects of significance on work performance. Thomas et al. [21] found no relationship between competence and performance, while Acuna et al. [22] found that competence is positively related to performance. Other studies on empowerment have examined how managers can use different approaches; like dynamic empowerment [23], improving quality [24] or employee self-management; to empower their workers [25]. Another stream of researches has examined the effects of culture and interpersonal trust on employee empowerment. According to Petter et al. [26] each of supportive culture and interpersonal trust do not necessarily result empowerment, but they may be requirements for achieving successful empowerment. Chen et al. [16] found that culture and interpersonal trust related to stronger feelings of psychological empowerment.

Although the number of research that studies the effects of empowerment in software development process is limited, there is some evidence that there is difference in empowerment in different types of software development organizations using different methodologies. For instances, Moe's investigated the relationship between empowerment and software development process [27,28] A critical view on how empowerment is achieved in agile and plan-driven teams is found in work by McAvoy et al. [29]. They had an analytical focus on team empowerment and less on the individual developer. In addition, Melnik and Maurer [30] revealed that agile developers are more satisfied and motivated at work than plan-driven developers, and in their study, the developers suggest empowerment as one of the reasons for this. Tessem et al. [31] describes how a growing Scrum development organization with a high degree of empowerment is able to maintain the workers' job satisfaction and motivation. Weiling and Ping [32] discuss the effects of empowerment on performance in open-source software projects. They

demonstrate that competence and impact have a positive influence on OSS participants' performance. Malihi and Aghdasi [33] discuss the business advantages when an individual has the opportunity to impact the decision making on the development process, he or she would feel satisfied with the outcome and gain a sense of ownership, which leads to the individual's commitment, involvement, and concentration of energy expended on the series of related activities.

The concept of participative decision making is at the heart of empowerment in software development job. A lot of types of activities in software development involve decisions that have significant impact on the development process and the final product [27]. Extending employee autonomy in decision making processes is a main part of employee empowerment initiatives [27]. For instance, Brockman [34] described how the participation in decision process can solve many problems in the work place. Zannier and Maurer [35] studied how design decisions are made in software teams. They showed how good decisions in well plan-driven teams are hindered by the way the software development organization implements the development process. Rousseau et al. [36] described how development organizations have adopted supplementary practices that ensure high levels of participation in decision regarding their work. Aarum and Wohlin [37] and Alenljung and Persson [38] gave more focused studies on how decisions are made.

3 Theoretical Underpinnings and Research Hypotheses

Under open and global business environment, employees need to be given more freedom and independence to face job challenges. That is, employees should be given the chance to be more creative and responsible at the same time [39]. Many researches demonstrate that empowerment releases individuals' capabilities, promotes their autonomy and control of their own jobs and improves their performance and abilities to benefit both their organization and themselves [19, 28, 40]. Web engineering is a field of knowledge work wherein one should also expect to see these effects.

There are differences between Web application development and software development in a number of areas. These areas include the people involved in development, the inherent characteristics of Web applications, and the audience for which they are developed [7]. Web application development team includes a wide range of skills and expertise in different areas, such as amateurs with no programming skills, graphics designers, writers, experts, database designers, project managers and IT professionals [40]. The notion that an individuals' empowerment affects his or her performance and productivity can be extended to the Web application projects context for three reasons. First, tasks in Web application projects, similar to job tasks in traditional organizations, are the fundamental components of projects [41]. These tasks have to be finished by participants to create value for the project's stakeholder. Second, the development of Web application is strongly influenced by the fact that development teams are generally considerably young comparing with software development team [40]. As such, empowerment play a more immediate role in influencing individual engagement and performance than facilitating conditions in the environment. Third, the inherent characteristics in Web-based project allow emotional empowerment to emerge due to their particular characteristics such as multidisciplinary team [42].

The characteristics of Web-based projects tend to allow developers to derive a sense of empowerment. Therefore, examining how empowerment affects performance and productivity may shed new light on why individuals make contributions to Web application projects and afford managerial implications that can be extended to proprietary Web application development.

The current study focuses on decision making and aims to determine whether different types of Web-based project development methods regarding decision making have difference(s). To this end,

we conceive that participating in decision making has a positive effect on Web application project outcomes.

The hypothesis for the proposed assumption is based on the following question "Given that the background is similar, is there any difference in empowerment between developers in different types of Web application development organizations using different Web application development methodologies?" The null hypothesis and alternative hypothesis are:

H0: There is no difference in empowerment between developers in different types of Web application development organizations using diverse methodologies for Web application development, given that the background is similar.

H1: There is difference in empowerment between developers in different types of Web application development organizations using diverse methodologies for Web application development, given that the background is similar.

4 Research methodology

4.1 Data Collection

The study used a questionnaire to collect the data. The Employee Empowerment Evaluation Kit was used as the survey instrument [43]. All questionnaire items were measured with five-point scales, ranging from 1 to 5. The survey questions are provided in Appendix. The research used random sampling to select companies from different Jordanian companies that develop Web applications for software market as well as in-house software development groups within corporations.

Table1: The number of respondents

Number of Questionnaires Distributed	1048
Collected Back	136
Response Rate	12.9%
Questionnaires Used for Analysis	123

Prior to data collection, the survey instrument was pre-tested to ensure that the survey concepts were clarified, and the selected constructs were prepared. The questionnaire was pre-tested using face-to face interviews with seven random Web application developers to locate and rectify any weaknesses in the questionnaire before formulating its final draft and distribution to the sample. Our data were collected as part of a larger effort using a survey distributed to Web project participants. We sent out about 1048 invitations, inviting participants to fill in a questionnaire posted on SurveyMonkey.com, an online survey service provider. We sent reminders in each of the following 10 days encouraging them to conclude our survey. A total of 136 people responded to our invitations, resulting in a response rate of 12.9%. We ignored 13 of the returned questionnaires as they were incomplete. In total, 123 surveys were analyzed to test our study. The whole survey took about 15 min to complete (although the elements of our survey were designed to capture data regarding a larger project). Participants were asked to firstly select the special Web project that they were lately most actively involved with, and

then to answer the questionnaire based on that project. Only a maximum of two participants from the same company were allowed to participate in the survey. After about eight weeks, the survey was closed with results shown in Table 1.

As a part of testing the reliability and construct validity, we used Armstrong and Overton [44] method to test the non-response. We compared the Chi-squares of the responses from the initial 25% of the respondents with that of the last 25%. The result of our test demonstrated that there was non-response bias.

4.2 Data Analysis and Result

This study is exploratory in nature. The study aims to investigate empowerment in the context of Web-based development projects. Empowerment has neither been related to Web project success nor empirically validated. It is thus emphasize that the study is exploratory one. There were two stages for data analysis. The first stage is to explore the actual development processes used in the project under studying. The well-known Web application development processes can be grouped into: Well plan-driven process methods and agility process methods [42]. Indeed, many web developers invent process methods on the fly [6] hoping that the emerging product will meet the needs of their organization. This fact makes the process methods classes are of three types (instead of two) namely: Well plan-driven process methods, agility process methods, and an own process methods. The own method is further classified into: Unknown process method, a very new process method, and hybrid process method.

In the second stage, we explore the similarities and differences among participants in different Web development methodologies participated in decision making. A concept such as participation in decision making has a wide and imprecise meaning. To get a better understanding of this term, it is useful to apply Wilkinson et al [9] deconstruction of this concept into four dimensions: degree, form, level, and range of subject matter. Degree indicates the extent to which employees are able to influence decisions about different aspects of management. Form that participation takes indicates how participation is legislated; is it through individual communication with managers or through employee's representatives. Level indicates at what level the decision takes place; is it strategic or operational or something in between. The range of subject matter is the fourth dimension points to what issues the decision is about, and it scaling from the relatively trivial to more strategic concerns relating. The rationale behind using the using Wilkinson dimensions is because the topics in the data study have is almost completely about issues relating to the development of Web application, as well as about the degree and the levels of participation in decision making.

The analysis is split into four sections. The first section is about respondents' background, the other three sections classified according to Web application development methodology. For each defined methodology group, the study was interested to find out whether there is difference in empowerment between developers in different types of Web application development organizations using diverse methodologies for Web application development. In the following sections, the study provides the results of the field study and detailed analysis and discussion of collected data by means of questionnaire from a sample of respondents.

4.2.1 Respondents' Background

Table 2 summarizes respondents' answers to the survey eight questions. The data was characterized by the following demographic distribution:

Table2: The Respondents' Background

Percent	Frequency	Response Item	Description
68.2	84	Male	**Gender**
31.8	39	Female	
22.7	28	Business services	**Business Areas**
33.3	41	Software in house / Software vendor	
44	54	Government, education, or nonprofit association	
17	21	Top management	**Job Level**
46.3	57	Middle management	
36.7	45	Lower management	
9.7	12	Project manager	**Position**
36.6	45	Software engineer	
7.3	9	Multimedia designer	
13	16	Software architect	
33.4	41	Other	
58.6	72	Bachelor	**Degree**
13.8	17	Master	
2.4	3	PhD	
25.2	31	Other	
5.7	7	Less than one year	**Experience**
29.2	36	1-5 years	
39.1	48	5-10 years	
26	32	More than ten year	
11.3	14	Less than 5 projects	**Participation**
27.6	34	5- 10 projects	
61.1	75	More than 10	
25.1	31	Well plan-driven (Waterfall, Rup, etc.)	**Methodology**
18.7	23	Agile methods (XP, Scrum, etc.)	
17	21	Other approach	
39.2	48	Own method	

- (68.2%) are males and (31.2%) are females.
- The majority of the participants companies were government, education, or nonprofit organization (44%), the second highest ratio was software in house or software vendor (33.3%), and finally the business services (22.7%).
- Largest portion of respondents (46.3%) are middle managers level, while (36.7%) are lower level employees and (17%) are top managers level.
- The majority of the respondents were software engineers (36.6%). Software architect (13%). Managers constituted (9.7%), and multimedia designers were third with (7.3%), where other participants made up the total at only (33.4%).
- Vast majority of respondents are university degree holders (74.8%) and the remaining (25.2%) are none university degree.
- Majority of respondents (roughly 65%) are with experience longer than five years, while (35%) of respondents are with experience less than five years.
- Majority of respondents are previously participated in more than five projects, while the ratio of less than 5 projects was (11.3%).

- Majority of the participants companies revealed they used own approaches (39.2%), 25.1 used Well plan-driven methods, XP/Agile methods was used (18.7%), other approach (17%).

4.2.2 Plan-driven Method

Plan-driven development is based on engineering project management techniques and can be thought of as the traditional way of managing large Web development projects [3]. As shown in Figure1, respondents had positive attitudes toward the importance of empowerment, but they had negative attitudes regarding their participation in decision making.

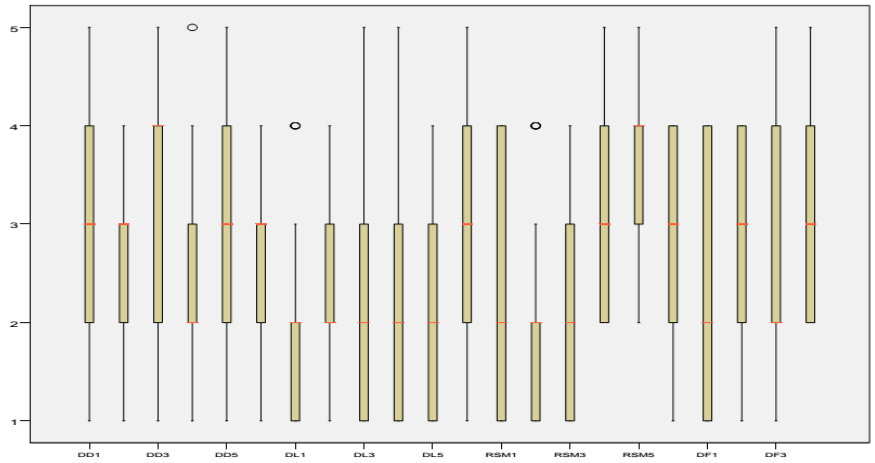

Figure 1: Empowering practices for developers working with plan-driven method

The organizations in this section didn't have a flat structure open for suggestions. The majority of the participants didn't have large degree of participation in high level of decisions especially regarding the strategic decisions, but they had some freedom to participate in low-level organizational decisions. They had some control of their own work and they had limited access to information and limited capacity to process it, but they received the resources that needed it to do their own job. Finally, In question RSM5, the study attempts to investigate if there is relationship between experience and latitude on the job. The result from RSM5 indicates that, there is a strong association between employees experience and with freehand on their job. Figure 1 summarizes how Plan-driven teams handle the empowering practices in Web-based project development, referring to the topics covered in survey as presented in appendix.

To summarize, it visible that the developers working with plan-driven method were not empowered enough in their organizations, especially in high level of decisions. The distribution of work tasks is still mainly the responsibility of high management, but participants had some degree of choice in what practices to implement, which mean that the well plan-driven process is less appropriate method for empowering modern employees.

4.2.3 Undefined Development Method

The second data set came from Web application development organizations with undefined development method. As shown in Figure 2, the respondents had positive attitudes toward the importance of empowerment. There is openness in these organizations towards accepting suggestions

from the staff regarding changes in work practices. The majority of the participants didn't have large degree of participation in high level of decisions especially regarding the strategic decisions, but they had some opportunity to make decisions whenever it possible. They had more control of their own work than developers working with plan-driven method and they had more access to information. It seems that the undefined project methodologies gives developers more influence. In addition, the result from RSM5 provides clear evidence that there is a strong association between experience and latitude on the job.

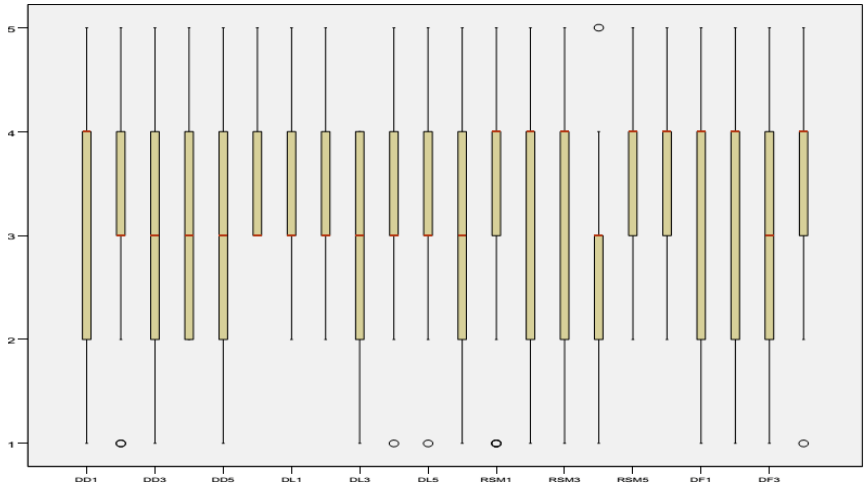

Figure 2: Empowering practices for developers working with undefined development method

From Figure 2 we can see that the organizations with undefined project methodologies give the impression that the staffs has more freedom regarding decision making than organization with Plan-driven methodologies, but with the risk of making selection that have little basis in the organization. Notice that undefined project methodologies facing risks of overspending, low quality, and late deliveries [6].

4.2.4 Agility Method

Agile process models follow a set of principles that lead to a more informal, but no less effective approach to Web application development process [3]. Figure 3 shows that empowerment mechanisms tend to be better in these types of methodologies as compared with those available in other sections according to respondents. Agile developers seem to have a clear sense of the impact they can have on their job. There is much acceptance for personal initiatives and task autonomy. The respondents are considerably empowered in their organizations and they have opportunities to influence decision making in their jobs or organization. They have control of their own work, and some of them consulted on higher level decisions.

In short, Figure 3 shows that the team as an empowered unit stands strong among the agile developers. The respondents have a sense of personal control over their work and also they have high degrees of participation in decision making process. What seems clear is that the developers working in agile teams are the most empowered.

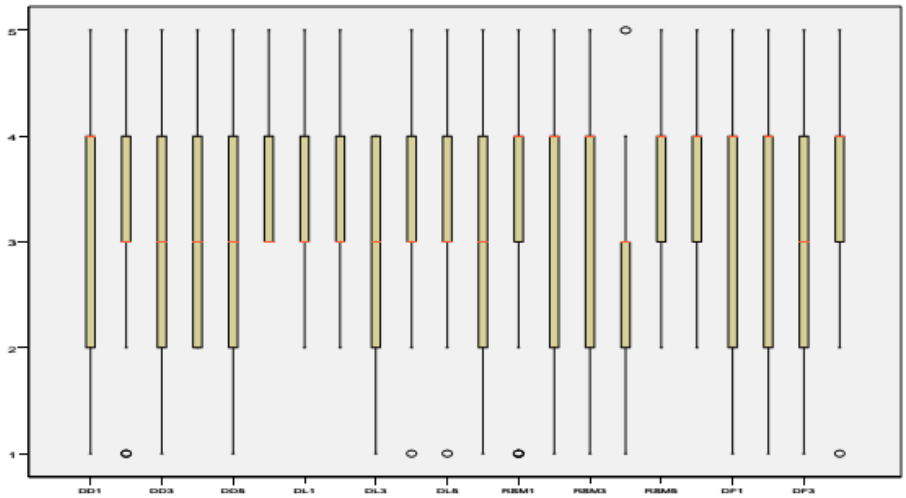

Figure 3: Empowering practices for developers working with agility method

5 Discussion and Conclusion

This study aims to investigate the roll of empowerment in different Web-based project development methodologies. Empowerment is an essential tool for the enrichment of human resources abilities and capabilities of mastering their jobs. 76.9% of the study participants agreed and confirmed this as a best practice. The concept of participative decision making is at the heart of empowerment. The study results prove that there are various degrees of employee participation in making decisions in different types of Web application development organizations. Based on the classification of the degrees of participation in decision making process (shown by Figures 1-3), we can observe that the participants working in plan-driven teams are normally the least empowered than participants working in undefined methodology teams, and participants working in agile teams are the most empowered. Probably this difference might come from the fact that empowerment is more institutionalized in agile methodologies. Thus, Web application developer, working in agile teams should be more attractive.

Also, the study discloses significant differences in how empowered the Web developers are in the different Web development organizations, the majority of responds have some control over the operational decisions in their work, but very few of them have the opportunity to participate in high level decisions. It appears that there is a lack of professional environment particularly in the undefined methodology and plan-driven methodology to giving the opportunity to bring in other developers' knowledge in high levels of decision processes. The last point confirmed by this study, is the majority of responds revealed that there is a very strong association between experience and empowerment within each methodology group. One observation here is that the experienced people have a chance to get a large extent in higher level decisions. To be exact, the career path in Web application development organizations is to start as a developer with only some responsibilities and then continue to low-level leadership with responsibility for resource allocation and project monitoring.

Finally, as the study data shows that there is a difference in the ability to participate in the three different types of Web application development methodologies, we believe that it is acceptable to think that from these data we can reject the null hypothesis that there is no difference between the methodologies groups.

5.1 Limitations

We acknowledge that there are limitations within the current study. One limitation is the target population is Jordanian Web developers. Since empowerment is a global phenomenon, there is need to investigate different cultures and different management styles. Future research should be conducted to verify the applicability of our research results to participants in different countries.

The second limitation is that there are other salient issues that can affect an empowerment in Web project, such as atmosphere of the Web project working environment. The focus of the current study is on decision making process; examining the effects of other issues is out of the scope of the current study. Future research should include more subjects so that we can compare and contrast different factors effects.

5.2 Managerial Implications

Our study has practical implications for the management of Web project development. In particular, the empowerment has significant effects on individual's productivity and performance. As such, project leaders should spend enough time to reflect on methodology selection, and choose a systematic approach to Web application development, will get higher levels of empowerment among its employees, and benefit from the positive organizational consequences that follow from empowerment.

In addition, the sense of making impact is important empowerment dimension that has positive effects on individual's productivity and performance in Web projects. As such, project leaders should find ways to maximize participants' sense of their impact on project. They should provide regular feedback to employees about work related issues so they can continuously improve their creativity. In addition, employees should have a sense of personal control over their work and they should be encouraged to give honest feedback about matters concerning their work and the management should tolerate dissent.

Appendix

Dear ladies and gentlemen: this questionnaire aims to study the roles of decision making and empowerment in Jordanian web-based development organizations. Empowerment simply means all ways and sources of power that enabling employees to successfully perform their jobs including information accessibility, discretionary decision power and freedom of choice at workplace.

- Kindly mark with (**X**) the appropriate box against each of the following statements which you think it is best fit your view.

Gender	( ) Male ( ) Female	
Business Areas	( ) Business services ( ) Software in house / Software vendor ( ) Government, education, or nonprofit association	
Job Level and Title	( ) Low Management, ( ) Middle Management ( ) Top Management	Name of your position _____
Position	( ) Project manager ( ) Software engineer ( ) Multimedia designer ( ) Software architect ( ) Other	
Degree	( ) PhD ( ) Masters ( ) Bachelor Degree ( ) Less than (Bachelor)	

Years of Experience	( ) Less than one Year ( ) One to Five Years ( ) Five to Ten Years ( ) More than Ten Years
Web projects that you have been Participated in	( ) Less than 5 projects ( ) 5- 10 projects ( ) More than 10
The Methodology Used	( ) Well Plan-Driven (Waterfall, Rup, etc.) ( ) Agile Methods (XP, Scrum, etc.) ( ) Own Method ( ) Other Approach

- Select one answer on Liker five degree scale where ONE means least agreeable and FIVE most agreeable regarding each statement.

No	Decision Degree	Importance
DD1	Empowerment includes employees participation and involvement	1 2 3 4 5
DD2	Empowerment is part of our organization policy	1 2 3 4 5
DD3	Red-tape and bureaucratic procedures handicap empowerment	1 2 3 4 5
DD4	I have influence over what happen on the project	1 2 3 4 5
DD5	I am given the opportunity to suggest and request	1 2 3 4 5
DD6	My supervisors value my suggestions and requests	1 2 3 4 5
No	**Decision Level**	**Importance**
DL1	I have significant autonomy in determining how I contribute to project	1 2 3 4 5
DL2	I have freedom to decide how I participating in this project	1 2 3 4 5
DL3	I participate in setting the goals and objectives for my job	1 2 3 4 5
DL4	My supervisors keep me informed of job problems or concerns	1 2 3 4 5
DL5	Proposed decisions are made at the lowest appropriate level	1 2 3 4 5
DL6	I have access to the information I need to make good decisions.	1 2 3 4 5
No	**Range of Subject Matter**	**Importance**
RSM1	I am involved in making decisions that affect my work	1 2 3 4 5
RSM2	I can decide what task to take on this project	1 2 3 4 5
RSM3	I have a voice in the decision when changes are planned	1 2 3 4 5
RSM4	I am given the opportunity to suggest improvements	1 2 3 4 5
RSM5	As I gain expertise I am allowed more latitude on the job	1 2 3 4 5
RSM6	People at my level receive the resources needed to do the job right	1 2 3 4 5
No	**Decision Form**	**Importance**
DF1	I have access to my supervisors' superiors when I need it	1 2 3 4 5
DF2	Are satisfied with their work	1 2 3 4 5
DF3	There is no fear in the organization	1 2 3 4 5
DF4	Higher management shares information with people at all levels	1 2 3 4 5
DF5	My supervisors encourage me directly to continually develop my job skills	1 2 3 4 5

The survey was implemented electronically by using the survey monkey system (www.SurveyMonkey.com), and all the questions were translated in Arabic.

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