Suggestion and Upgrading Extreme Programming Methodology in Web-Based Project Development

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Abstract

In this research, we will discuss how to improve the work by dealing with the factors that participates in enhancing small IT organization to produce the software using the suitable development process supported by experimental theories to achieve the goals. Starting from the selecting of the methodology to implement the software. The steps used are and should be compatible with the type of the products the organization will produce and here it is the Web-Based Project Development.

The researcher suggest Extreme Programming (XP) as a methodology for the Web-Based Project Development and justifying this suggestion and that will guide to know how the methodology is very important and effective in the software developments. Also the organization activities will be explained to put the software development process into the context and to know how much these activities are affective on the nature of the product that the organization intends to produce.

The research focus on the limitation of pair programming style which is used in Extreme Programming methodology (XP) and suggest a solo programming style instead of pair programming style in that methodology.

Also the research came up with guide can help the project manager to choose a solo programmer to be instead of pair programmers to improve the methodology in Web-Based Project Development.

Keywords: Agile, XP, Pair programming style, Solo programming style, Guide

Introduction

Agility in short means to strip away as much of the heaviness, commonly associated with traditional software development methodologies, as possible, in order to promote quick response to change environments, changes in user requirements, accelerate project deadlines. Agile methodologies prefer software development over documentation.

Agile methodologies include: Extreme Programming, Agile Modeling, SCRUM, Crystal methodologies family, Feature-Driven Development, Adaptive Software Development.

In this research, the researcher will implement Extreme programming (XP) to improve the web-based project development in small IT organization.

Agile processes are a family of software development methodologies that produce software in short iterations and allow for greater changes in design [1]

According to Hans Van Vliet [2], XP is based on five principles that drive its practices:

· **Rapid feedback:** Feedback is obtained quickly, within hours, or at most few days.
· **Simplicity:** Today's job is done today and tomorrow's job is left for tomorrow.
· **Incremental change:** In XP, things change in small increments.
· **Embracing change:** By not planning, designing or coding more than is needed right now, most options for the future is kept.
· **Quality work**: Quality is must. The team should find pride in delivering excellent quality.

The simplest view of why pair programming works is that two people make better design decisions than one. This view characterizes programming as a series of design decisions that are translated into code. The presence of a second individual distributes the cognitive task of programming [4], aiding design discussion and error finding. More specifically, working in pairs has the following influences on decision-making:

• Design collaboration affords a mutual apprenticeship, where through the collaboration each Participant learns some of the technical skills and methods of their collaborator. This is one of The reasons why Beck [3] encourages pairs to rotate on a frequent basis.

• Collaborative design requires the negotiation of a shared understanding and mutual orientation. This negotiation process makes explicit the cognitive processes that are normally Tacit when working individually [5].

• This negotiation process requires that programmers produce an account [6, 7] of goals, plans, decisions and actions. This appears to lead to a more thorough exploration of design Options. This account production, verification, and affirmation lead to increased confidence By the programmers and vets flawed design ideas earlier.

The suggested Methodology used in Web-Based Project Development

After analyzing the mistakes as discussed, to solve these problems we need to come up with practical and cost effective solution. The methodology adopted by the web development team is Extreme Programming (XP). This methodology will involve the customer in day-by-day decisions making, decrease the milestone to be weeks rather than months, enhance and build the estimation base on the actual project progress.

The first step in the XP life cycle is the exploration phase when the customers describe the storyboard, scenario, and write the story cards of the product that they want to be included in the first release. In that time the developers prepare the tools, technology and practices to be use in the product. Everything will be tested and the prototype feasibility assessed to ensure that the product is able to implement.

The next phase is the planning phase which is concerned with prioritizes the order of the stories to be implemented in the first release. In this phase the developers estimate the effort

for each story to be implemented and then schedule the time to achieve the tasks. This schedule should be agreed to implement. The first release should not expect two months.

The iterations to release phase includes many iterations to achieve the first release. The schedule placed in the planning stage is divided into a number of iterations and each iteration take one to four weeks. The first iteration determines the structure of the whole system and this is achieved by selecting the stories which determine the architecture of the whole system. The customer determines the stories to be implemented in each iteration. The customers test the product after each release and provide the developers with the feedback. And finally after the last iteration the system will be ready to produce.

Before the system can be released to the customer the performance of the system requires more testing and checking during the product ionizing phase. Many new changes may be ordered in this phase and should be studied briefly. These new requirements should be documented in this phase to be used in the next iteration.

After the product is delivered to the customers they need the effort and support of the maintenance team and that occur in the maintenance phase. The team structure in this stage may change and new stuff is configured to perform this task.

The final phase when there is no new story to be added by the customer and it is called the death phase. That phase after the product meet the user requirements and the product is conformed to the standards such as reliability and work with high performance, as shown in figure(1).

Suggestion and improving management process for the selected methodology

- The Web-base development need a wide experiences due to include various specialists and that required a high cohesion team which provided by applying a suitable methodology. Since the time required to release the product is short that led to choose this methodology. The risk reduced using this methodology by involving the user in the development process and that affect on the relation between the customer and the team. Also it helps to make the learning operation easier.

- The Researcher will high lighting on the limitation of pair programming style which is used in the methodology and suggest a solo programming style instead of it.

- The Researcher will come up with guide can help the project manager to choose a solo programmer to be instead of pair programmers to improve the methodology in Web-Based Project Development

- , there are some points the project manger must concern to choose solo programmer:

- **High Communication skills**: In the software world, people usually define good communication skills as fluency in a spoken language. That's not really what it is. It is how effectively he/she able to communicate with others. As a 'good' developer, he/she

should be able to express him/herself well, listen well, as well as manage the communication process well and solve any problem he face.

- **Practice**: many developers having good amount of theoretical knowledge. Many of them read a lot of books and technical material. However when it comes to applying that knowledge, they take a back foot. That is because they do not. Efficiency and effectiveness in work can only be attained if he/she practices code. The only way can make a good developer of is to practice, and then practice some more, so the project manager should choose the right developer according to the number of success projects he did in specific fields and number of years those he spent working in organization.

- **Wide Knowledge of Networking and Databases**: People may contradict this point, but during my career as a developer, I have realized that a good developer should know the basics of networking and databases. Almost all the solutions that we create, involve interactions with networks and databases. Having knowledge of these two, helps you write better code and saves a lot of time too.

The output and benefits of the research

- Improve the work in small IT organizations by dealing with the factors that are participates in enhancing the small IT organization to produce the software using the suitable development process supported by the suitable tools and experimental theories to achieve the goals. Starting from the selecting of the methodology to implement the software and ending with the tools used to produce the product. The steps used are and should be compatible with the type of the products the small IT organization will produce and here it is the Web-Based Project.

- Implement Extreme Programming methodology (XP) as very powerful methodology and it contribute in organization success by strengthen the relation between the customer and the small IT organization and between the team members. Also it contributes in technical success by depending on important principles such as pair programming which increase the responsibility and exchange the experiences.

- In Extreme Programming (XP), all code is written by two programmers at one machine, one does this all the time: two programmers work together at one computer screen. One of them does the coding, the other one looks over his shoulder, gives advice, notices small lips, ask questions, and so on. This practice is called pair programming.

   According to literature review, pair programming is the positive effect of improvement knowledge sharing including that of the development environment, code written by a pair to be more understandable. Code is written by a driver to be understandable by the navigator, motivating the driver to be clearer.Also pair programming can take a bit more total effort but produce a higher quality product.

Every project is constrained by a list of customer-requested (scope), the amount of time available to produce the system in support of the requirements (time), and the limit of money available (cost). These are referred to as triple constraint of project, management.

Cost refers to the resources being spent (usually money); pair programming style is higher cost than solo programming style, why? Because pair programming style needs two salaries to spend each month because they are two programmers not like solo programming style only one salary each month spend for one developer only.

For example the salary of pair programmers which have two years experience in the organization is 4000$ each month, so 2000$ per month for each one. The researcher suggests a solo programmer, his/her salary is 3000$ each month according to his/her three years experience in the organization can reduce the cost to 1000$.

Here the researcher focused on the ability of developer instead the number of developers, which can help to reduce the cost of the project. Time refers to the amount of time (hours, days, weeks, months) allocated for completing the project. According to the literature review the pair programming style can reduce the time which need to spend to finish the project, actually its right and good idea but what if these two programmers are not a compatible to work with each other?

The compatibility here means, the pair programmers must work well together or can exist together successfully, if we say that you are a compatible with someone, means that you have a good relationship with them you have similar options and interest.

· The researcher suggest a guide can help the project manager to choose the right developer for   the right project to be instead of pair programmers, focusing on the experience of developer itself, which is programmed by Microsoft office access as shown in figure (2) and figure (3).

· Experience of developer= the number of projects he did before in special programming language (e.g. C++, C# and so on)+number of years those spent working in the organization.

Conclusion

The project passing through many challenges and its successful depended on complete on time, on budget, and with all features as the customer ordered. Even if all these criteria are achieved the product may fail and that because it fail to attract the intended users or couldn't increase the profit. The decision to choose the suitable methodology depended on the analyzing the type of the products. Extreme Programming (XP) is very powerful methodology and it contributes in organization success by strengthen the relation between the customer and the small IT organization and between the team members.

The Web-base development needs a wide experiences due to include various specialists and that required a high cohesion team which provided by applying Extreme Programming (XP) methodology. Since the time required to release the product is short that led to choose this methodology. The risk reduced using this methodology by involving the user in the

development process and that affect on the relation between the customer and the team. Also it helps to make the learning operation easier.

It is recommended to use **XP** methodology because it supports the team work and collaboration, also it supports print iteration which helps in releasing the product quickly with less error. Also it is recommended to make a daily team meeting which facilitates track the problems and solve them early.

The researcher was high lighting on the limitation of pair programming style which is used in Extreme Programming (XP) and suggests a solo programming style instead of it.

Also the research came up with guide can help the project manager to choose a solo programmer to be instead of pair programmers to improve the methodology in Web-Based Project Development.

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Fig. (1): XP Methodology

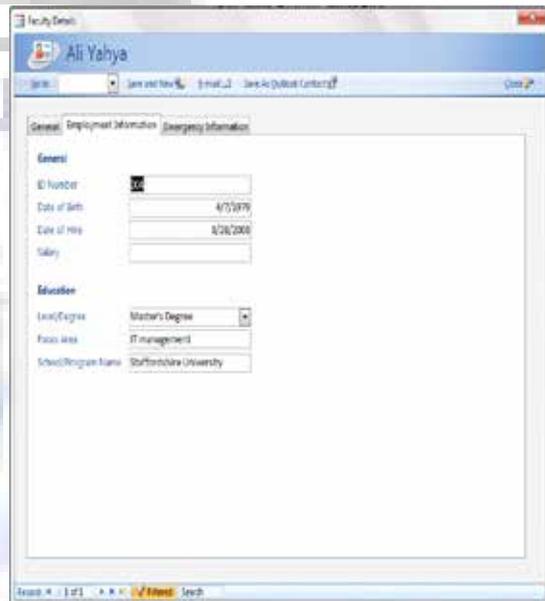**Fig.(2)first GUI project management guide**   **Fig.(3)first GUI project management guide**

اقتراح وتطوير Extreme Programming في مشروع بناء الموقع الالكتروني

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الخلاصة

سنتناول في هذا البحث الكيفية التي سنعتمدها لتحسين طريقة معالجة العوامل التي ستعمل على توسيع تقنية المعلومات لمنظمة صغيرة لانتاج البرمجيات باستخدام عملية التطوير الملائمة وبالدعم الضروري للنظريات التجريبية وذلك من أجل تحقيق الاهداف المرسومة.

سننطلق بعملنا باختيار المنتهجية الملائمة لتنفيذ هذه البرمجيات. فالخطوات المستخدمة ينبغي أن تكون متناغمة مع نوع المنتجات التي ستنتجها المنظمة وهذا هو مشروع بناء الموقع الالكتروني.

يقترح الباحث استخدام(XP) منهجية لبناء مشروع الموقع الالكتروني وتبرير استخام هذا المقترح وهذا من شأنه أن يقودنا الى معرفة المنهجية التي تعد مهمه وفاعلة لتطوير عملية تطوير هذه البرمجيات وتوضيح درجة أهمية هذه الانشطة وفاعليتها في تحديد طبيعة المنتج الذي تتوجه المنظمه لانتاجه.

يركز البحث على سلبيات نمط البرمجة الثنائية التي تستعمل في منهجية (XP)واقتراح نمط البرمجة الفردية بدلا من الرمجة الثنائية.

اضافة الى عماورد أعلاه توصل البحث الى الدليل او المؤشر الذي يمكن ان يساعد في اختيار مدة المشروع الذي سيقوم باختيار المبرمج المستخدم للنمط الفردي للبرمجة بدلا من النمط الزوجي وذلك لتحسين المنهجية التي تستند اليها عملية بناء مشروع الموقع الالكتروني.

الكلمات المفتاحية:سريع الحركة ،(XP) ، نمط البرمجة الثنائية، نمط البرمجة الفردية، الدليل