

Extreme Interviewing

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Abstract. Some Extreme Programming practices such as paired programming and open and collaborative workspaces present challenges to the traditional hiring process as most interview candidates have trouble imagining the transition to such an environment. A traditional interview process might yield candidates who are ill-prepared and perhaps even unwilling to undertake such a dramatic change to their own ideas of software development practices. This article examines how one team met those challenges head on with a practice they came to call “Extreme Interviewing”. The results were just as stunning as the Extreme Programming practices themselves.

1 Introduction

Market opportunities often present themselves at a time when companies are ill-positioned to take advantage of the opportunity. In this type of situation it is the job of executive management to make the appropriate changes inside of the organization to best pursue the market opportunity. In one such company the available opportunities required a team that could more easily adapt to changing requirements. To address this challenge the company adopted Extreme Programming as the standard methodology for product development. Having restructured their process to handle more dynamic requirements, the management team turned their efforts towards the need for producing software even faster than the team’s enhanced productivity could achieve. The executive team decided to expand the development team from twelve developers to twenty-four as soon as possible.

2 Key Challenges

The management directive to double the size of the existing development team was clearly not meant to merely increase the body count, but instead needed to quickly increase the productive output of the team. New team members needed to understand

the product and the technologies, but more importantly needed to adopt the Extreme Programming practices that had become central to the team's efforts.

The processes, as adopted, required that new team members needed to value a high level of interaction with other team members. It was also important to select candidates that would embrace the goals of the process instead of merely moving through the steps of the process on their way to a paycheck. Central to this philosophy was the value of team productivity being more important than individual efficiency. Teamwork is a term that most applicants will be familiar with, but most of them will have been rewarded in the past for their individual efforts. So it was important to not simply *communicate* that new hires were expected to work towards team goals over individual goals but to *test* applicants' behavior in this area.

2.1 Team Participation in the Hiring Process

Because the existing team needed to work very closely with new hires, using such practices as paired-programming, their participation was central to the selection effort. It was also assumed that by having the existing team select the candidates, the existing team members would have a stronger stake in helping the new hires assimilate into the team environment.

While recognizing the need for team participation it was also recognized that unguided selection would have left the current team members selecting candidates based upon traditional hiring criteria such as technical skills. There was also the danger that the team would prefer candidates having common background and domain experience. Because the new team practices allowed talented developers to quickly add new skills to their repertoire, the need for skills-based selection was deemed to be unimportant. Instead, the desire was to add new team members with a variety of backgrounds and skills to extend the overall experience of the team. Therefore the key selection criteria was that the candidates were interested in using the company's new practices, desired to work closely with peers to create the desired output, and had an ability and aptitude to learn new things.

2.2 Interview Format

Traditional interviewing where a candidate arrives at the appointed time and then meets with a series of potential peers and/or managers creates a tremendous bottleneck which limits the number of candidates that can be interviewed. The nature of this type of interviewing also tends to provide an inconsistent interviewing experience. Long delays between meeting candidates often skews the selection towards the most recent based upon the interview most clearly recollected.

To avoid these limitations the goal was set to interview at least five candidates for each available position, or in this case to interview at least fifty candidates. The interviews needed to be performed in a concentrated enough fashion so that all candidates would be interviewed during the same week. Of course it was necessary to continue software development throughout this process.

To achieve these goals several options were explored in a close collaboration between the software development management team and the Human Resources department. Under considerable time pressure the following format was decided upon. All fifty candidates were invited to a first interview on a Saturday. The goal of the first interview was to identify candidates with good communication and teamwork skills. No comparisons of technical skills or experience would be done at this time. The top candidates would be invited back for a second interview the following week, then job offers would be extended by Friday of that same week.

In addition to structuring the schedule of interviews, the team also organized the interviews so that each candidate would have a similar and comparable experience. The interviews were constructed around a series of interactive exercises. These interactive exercises were devised to simulate key activities in the team's new process. In this manner the candidates would become better informed about the team while at the same time the team could gain insight into each candidate's skills and talents.

3 Candidate Pool

The first task was developing a pool of candidates. The HR manager and a contracted recruiter took on the task of finding fifty candidates to bring in for initial interviews. They took out newspaper advertisements, attended job fairs, and solicited candidates from other recruiters and current team members. Their initial screening was focused not on skills assessment but simply on contacting the candidates and determining their ability to communicate clearly. They were instructed to look for energy, enthusiasm, and curiosity. As candidates were offered the opportunity to participate in the interview process an HR representative described the unusual format to them over the phone. The process of selecting the fifty candidates took six to eight weeks.

4 The First Interview

On Friday, the day before the first interview, twelve volunteers from the existing team were assembled to learn the interviewing process. The volunteers worked through the exercises that the candidates would be asked to perform so that they would be familiar with the exercises. The team then reviewed the goal of the first interview: identification of candidates with good teamwork and interpersonal skills.

The candidates had been given an early or a late appointment for the Saturday interview. As they assembled they were given name badges. They were then directed to a seating area inside of a large warehouse. This warehouse was known as the Java Factory (a picture of the Java Factory can be found on page 92 of "Extreme Programming Applied" by Ken Auer and Roy Miller), a nickname based upon its earlier function as the warehouse where printers were assembled on an assembly line, and its new role as the open collaborative workspace of a software team working in Java. This was probably the first in a sequence of red flags that helped candidates

understand that this was not a normal job. As the candidates assembled they were provided with doughnuts, coffee and juice.

4.1 Introduction to the Java Factory

After assembling, the candidates were introduced to the company, the team, and the Extreme Programming practices by the VP of Product Development in a 45-minute PowerPoint presentation. In this presentation special attention was given to the fact that all programming would be done using paired-programming, and that unit testing was required of all programmers. Questions were answered in a short question and answer session, and then the HR representative covered the more traditional fifteen-minute presentation on company benefits. Then the VP of Product Development described how the remainder of the day would be spent in thirty minute paired exercises designed to reinforce the development processes outlined in the presentation and that the evaluation on who to bring back for second interviews would be based upon teamwork skills.

4.2 The First Exercise

For each exercise the instructions were explained to the candidates while they were seated in the large group. The first exercise was explained as follows: During the exercise they would be provided with a set of Story Cards that they would then estimate. Each candidate would be paired with another candidate and together they would have twenty minutes to estimate thirty-two story cards for a fictitious product. Each pair of candidates would be provided with a packet of pre-written story cards and a blank multiple-choice answer sheet to write their estimates on. Each pair would be provided with an On-site Customer to answer any of their questions. The On-site Customer was one of the twelve interviewers. In the final stage of instructions the candidates were reminded that they were not being evaluated as to their programming talents but rather their ability to think critically, ask good questions, and finally on their ability to make their partner look good.

Candidates were then assigned a random number between one and twelve and then asked to move to a table with that number on it. Each table then had two candidates and one interviewer, along with all of the materials required for the exercise. This exercise quickly identified individuals who were unable or unwilling to help their partners participate. It also quickly identified individuals who could help draw on the experience of their partner to make better decisions. During the twenty minutes the room was very noisy, again providing a good demonstration of our working environment, and the energy level was high. At the end of the twenty-minute period candidates were brought back to a central seating area for instruction on the second exercise, while interviewers made quick notes about the interactions that they observed.

4.3 The Second Exercise

During the instructions for the second exercise it was explained to the candidates that they would answer a set of questions that were similar to more traditional interviews. They would be assigned a new partner for this exercise, and they would need to work with the partner to answer the questions together as a team. Once again it was reinforced that candidates were not being evaluated on the technical merits of their answers but instead on their ability to collaborate with their partner to improve their answer.

Candidates were then assigned a new partner and were seated with a new interviewer. Each interviewer had the same list of questions and would look to facilitate a dialog between the candidates. Most of the questions were formatted as to require an odd number of responses to further reinforce that candidates should not simply split the workload in half.

- What are the three most effective practices that you have seen used to deliver successful software projects?
- What is the most challenging bug that you helped someone else fix?
- What are useful metrics in knowing when a method or subroutine is too long?

Again, after twenty minutes the candidates were once again recalled to a common seating area. At this point the candidates were served lunch. Additional volunteers from the company served pizza and other options to the candidates while answering questions about the company.

4.4 The Third Exercise

At the conclusion of lunch the candidates were assembled for instructions regarding the third and final exercise of the day. In this exercise the candidates would be paired once again with a new partner and a new interviewer. This time the pair would fulfill the role of Customer. Each Customer pair would receive a set of Story Cards and be asked to build a three-phase release plan. The same Story Cards that were used in the estimating exercise were reused but the estimates were standardized from team to team. Again the selection criteria for second interviews were shared with the candidates. Those candidates that best demonstrated critical thinking and teamwork skills would be invited back for a second interview. In other words, make your partner look good and your chances improve.

In this exercise the interviewers simply answered any questions that the candidates had about the process or the intended market for the product being planned. In addition to providing a third opportunity for candidates to demonstrate their skills this exercise like the two prior exercises reinforced the presentation on what daily life in the Java Factory would be like. At the end of the twenty-minute session candidates were invited to one final question and answer session with the VP of product development and the interviewers again made notes about interaction skills they had witnessed. The candidates were thanked for their participation. The VP also offered

to send a free copy of Kent Beck's "Extreme Programming Explained" to candidates who sent an email describing how the interview experience had been for them. The candidates were then sent home.

4.5 Selection of Candidates for Second Interviews

Because we ran two sessions like this, each of the twelve interviewers had watched twelve candidates work through various exercises during the day. At the end of the day we reviewed each of the almost fifty candidates. As each candidate was reviewed interviewers were asked if they had any positive comments regarding the person's interaction skills. Very quickly the team was able to sort candidates into three groups: poor teamwork skills, adequate teamwork skills and strong teamwork skills. The fifteen with the strongest teamwork skills were invited back for second interviews.

At the end of the day the management team and the Human Resources representatives reviewed the results. Perhaps most remarkable was the ability for twelve interviewers to quickly agree on relative rankings for each of the candidates.

5 Second Interviews

Second interviews were scheduled during normal working hours during the week that followed the first interviews. Second interviews were also built around three activities.

The first activity was for the candidate to sit down with a pair of team members from the team and estimate a new set of stories. The group would estimate the stories together at a more deliberate pace than in the first interview. The estimates would also be based upon the technology that was most familiar to the candidate. This allowed the interview team to assess the candidate's technical skills without quizzing him or her. This was important given our concerns about interview consistency. Scripting all of the questions would not allow us to explore each candidate's strengths, while allowing the interviewers to create their own questions on the fly causes liability concerns.

The second activity was for the candidate to sit with a different pair of programmers who were actually programming. After only a couple of interviews the team quickly learned to immediately place the candidate at the keyboard. This gave the candidate real world experience with paired-programming, as well as the opportunity to watch the rest of the team working in their native habitat.

The third activity was a one-on-one meeting with the VP of Product Development. The VP would ask some of the traditional questions about the candidate's background, so that the candidate would know that we had actually received their resume. He would then further probe their experience in the interview process to date and their interest in the Extreme Programming practices. Those candidates that had obtained a copy of the book on their own and read it were considered promising, as

well as candidates who were concerned that XP did not solve all of the world's problems but were still clearly compelled to learn more about the opportunity.

6 The Decision Process

On Friday, after the second interviews had been completed, all of the available team members were assembled. Each candidate's name was listed on a whiteboard along with his or her relative experience level within the industry. Team members were then asked to speak up for candidates that should be added to the team.

At first the discussions reverted into which candidate had the strongest technical skill sets. The team was reminded that it was a goal to hire new team members with the broadest diversity in both skills and experience, and that the focus should be on how well the potential team members would adapt to the Extreme Programming practices and the team's new value set. The VP of Product then helped to refocus the discussion by summarizing with a new question: "which of the candidates do you believe would make good pair-programming partners?" At that point the ranking was quickly arrived at and the VP decided to make offers to the top eight candidates.

Seven of the eight candidates accepted positions.

7 Integration of New Hires into the Team

Over the next four weeks the seven new team members arrived at various points in the development iteration. New team members were immediately assigned a partner on the morning they arrived and set to work on the stories for which their partner was already responsible.

The integration of new employees into this environment is almost impossible to imagine. New employees were writing production code on their first day at work. This was true even if they had never used the development environment before and even if they had never used the Java language before. The support of paired-programming and knowing at least seven of the team members from the interviewing cycle provided a strong support network. The open and collaborative environment provided visible access to role models that demonstrated that interrupting others was not only tolerated but also was an expected behavior.

The integration of new employees was so quick and so complete that when new hires were asked to participate in the next round of hiring, only thirty days after the first, candidates could not tell the new employees from the old timers.

8 The Results

The company hired fourteen developers within two months using this process. An additional six were later hired using a smaller variant of the process. There was only

one developer lost to attrition during the life of the team. In almost any context, the results were stunning. It was the context of the times that made the results almost unbelievable. All of the hires were completed between February and June of 2000, one of the most difficult hiring periods in the history of our industry. They also occurred in the Midwest, where the propensity to change jobs is far lower than in other regions and typically results in fewer qualified candidates. Finally, they occurred at a time when Extreme Programming, paired-programming and collaborative work environments were not part of anyone's vocabulary.

Paired-programming and an openly collaborative environment were the key enablers of this process. The work was technically interesting but not more so than many other opportunities in the region. Clearly, this process and these practices touched on basic needs for a large number of people. This need went beyond paychecks and a place to hang one's hat during the day.

Unlike most hiring processes, the integration of new hires was simply a part of the work process rather than an unpleasant distraction for otherwise productive employees. Perhaps, the most telling example of the success of the practice was that after three two-week iterations, a new hire was skilled enough in the practices to mentor a new employee just joining the team.

It was a joy to manage and work with such a team.

9 Conclusions

Since these events occurred, none of the authors have had the opportunity to use this interviewing format again. The original experience was considered so successful that the Human Resources department used the same format to facilitate interviewing for other departments, even though the other departments did not use the Extreme Programming practices. These subsequent efforts were also considered more successful than the typical serial interviews with open question and answer formats.

The development of this process was far from rigorous. We have not attempted to demonstrate through experiments that this format is better or more predictive than others. Nor have we continued to research parallel experiences with other Immersion Interview techniques. Nonetheless all three authors look forward to using this process in the future. We believe that it provides a very effective technique to identify candidates that will integrate well into a team while at the same time broadening the team's capabilities and experience base.