2010 NA-YGN
Knowledge Transfer Survey Report

Issued: August, 2010

Revision 0

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2010 NA-YGN Survey Team Members

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Executive Summary

The recruitment, retention, and development of the new generation of young professionals are some of the greatest challenges facing the nuclear industry today. NA-YGN recognizes these challenges and the potential impact on the industry as a whole and has been working to address these challenges. As part of the long-term solution, NA-YGN generated this knowledge transfer survey. It assesses the participation and effectiveness of knowledge transfer activities in the nuclear industry. Survey responses were analyzed and recommendations to the nuclear industry were made based on the conclusions of the survey.

It should be noted that the majority of respondents have less than four years experience in the nuclear industry, have engineering backgrounds, and work for electric utilities.

Recommendations to the Nuclear Industry

Based on the results of the study conducted, the following recommendations are made.

Establish more formal and structured knowledge transfer programs and provide funding to enable participation. Specifically, establish more formal technical and professional mentoring programs.

Maintain the high participation and effectiveness of technical training, mentoring (both technical and peer) and technical procedures knowledge transfer activities.

Increase the participation of industry conferences, rotational assignments and job cross training activities. These are viewed as effective but have low participation.

Increase the effectiveness of non-technical procedures, use of a knowledge database and job turnover. These are viewed as ineffective but have high participation.

NA-YGN should continue to hold knowledge transfer events, identify best practices and create programs/standards for knowledge transfer activities within the nuclear industry.

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Introduction

The surge in demand for alternative energy sources, with a primary focus on nuclear energy, has resulted in tremendous growth in the nuclear industry over the past five years. The recruitment, retention, and development of the new generation of young professionals are some of the greatest challenges facing the nuclear industry today. According to the Nuclear Energy Institute (NEI), about forty percent of the nuclear industry's workforce will be eligible for retirement in the next ten years. North American Young Generation in Nuclear (NA-YGN) recognizes these challenges and the potential impact on the industry as a whole.

As part of the long-term solution, NA-YGN generated a first-of-a-kind Recruitment and Retention Benchmarking Survey in 2006. Since then, the significance of knowledge transfer (KT) has risen to the forefront of recruitment and retention. Knowledge transfer is the process used for distributing important undocumented (tacit) knowledge within the workforce from experienced workers to those with less experience. As the current industry leaders prepare for retirement, it is critical that their knowledge and experience are shared with the next generation, which is responsible for leading the future of nuclear.

In 2010, NA-YGN chose to survey its members about knowledge transfer within their workplace in order to continue promoting nuclear science through the perspective of young professionals. The results of this survey were used to assess the participation and effectiveness of knowledge transfer programs for those on the receiving end of the knowledge exchange; namely, young professionals and those new to the nuclear industry. Conclusions drawn from the results were turned into recommendations for knowledge transfer activities within the nuclear industry.

Data Collection and Analysis Method

An online survey was available during May, 2010. Survey respondents were not personally identified, nor were they linked to their employers. The survey was open to all international NA-YGN members, which numbered approximately six thousand as of October, 2009, and was publicized through NA-YGN membership announcement emails and local chapter lead briefs. A total of 575 responses, approximately ten percent of the international NA-YGN membership, were recorded.

The survey consisted of twenty questions broken down as follows. Seven dealt with background information, four related to participation/effectiveness of KT activities and nine free response sections. The background information was a necessary survey tool to ensure participant anonymity while gathering relevant information to determine how long they have worked in the industry, job function and company type. The next set of questions listed different types of KT activities and asked the participants to select the ones they had participated in and how effective they found that particular program to be. The free response questions were intended to determine what challenges exist, what KT activities are successful and why some are ineffective. Survey participants were asked to give personal insights on their positive and negative experiences in the areas of mentoring, shadowing, technical training, job turnover and procedures. Comments to the free response questions were compiled into groups to determine the most common experiences of respondents.

Demographic Information

Survey respondents were asked to provide their experience in the nuclear industry as well as in their current job function. For a better understanding of what industry sector the respondents came from, they were asked to provide a general description of their company.

Figure 1: Respondents' Years of Experience in the Nuclear Industry

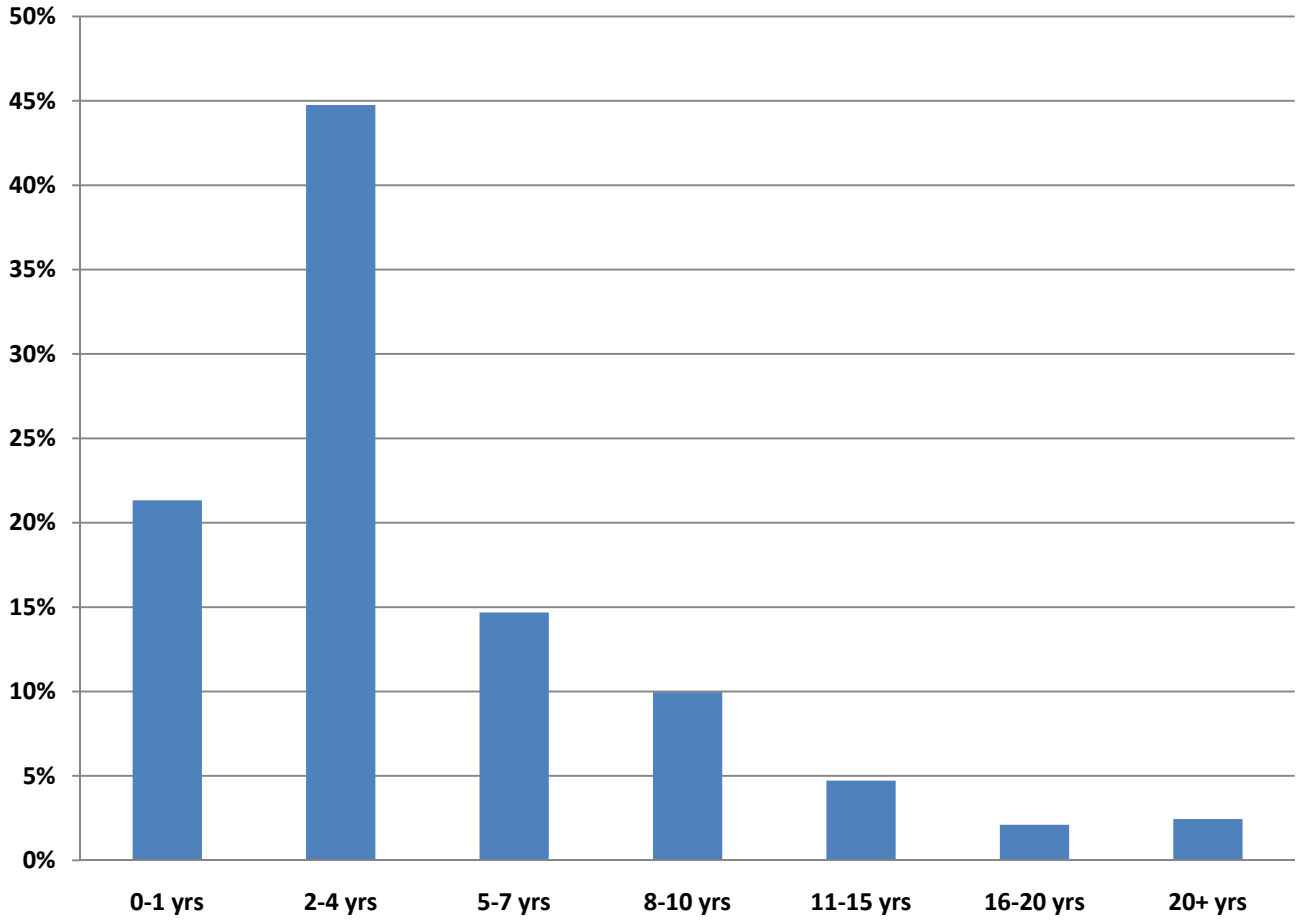
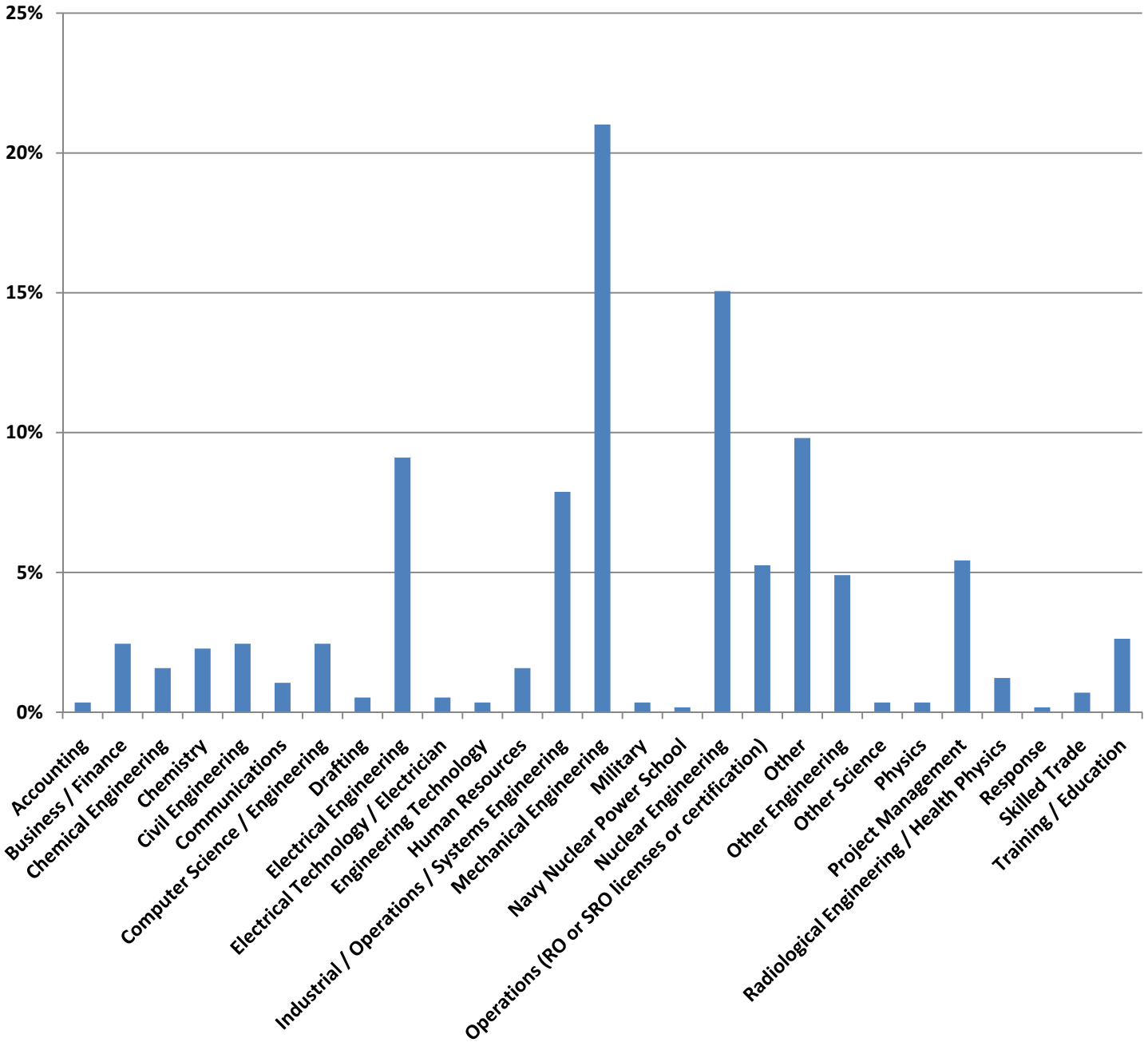


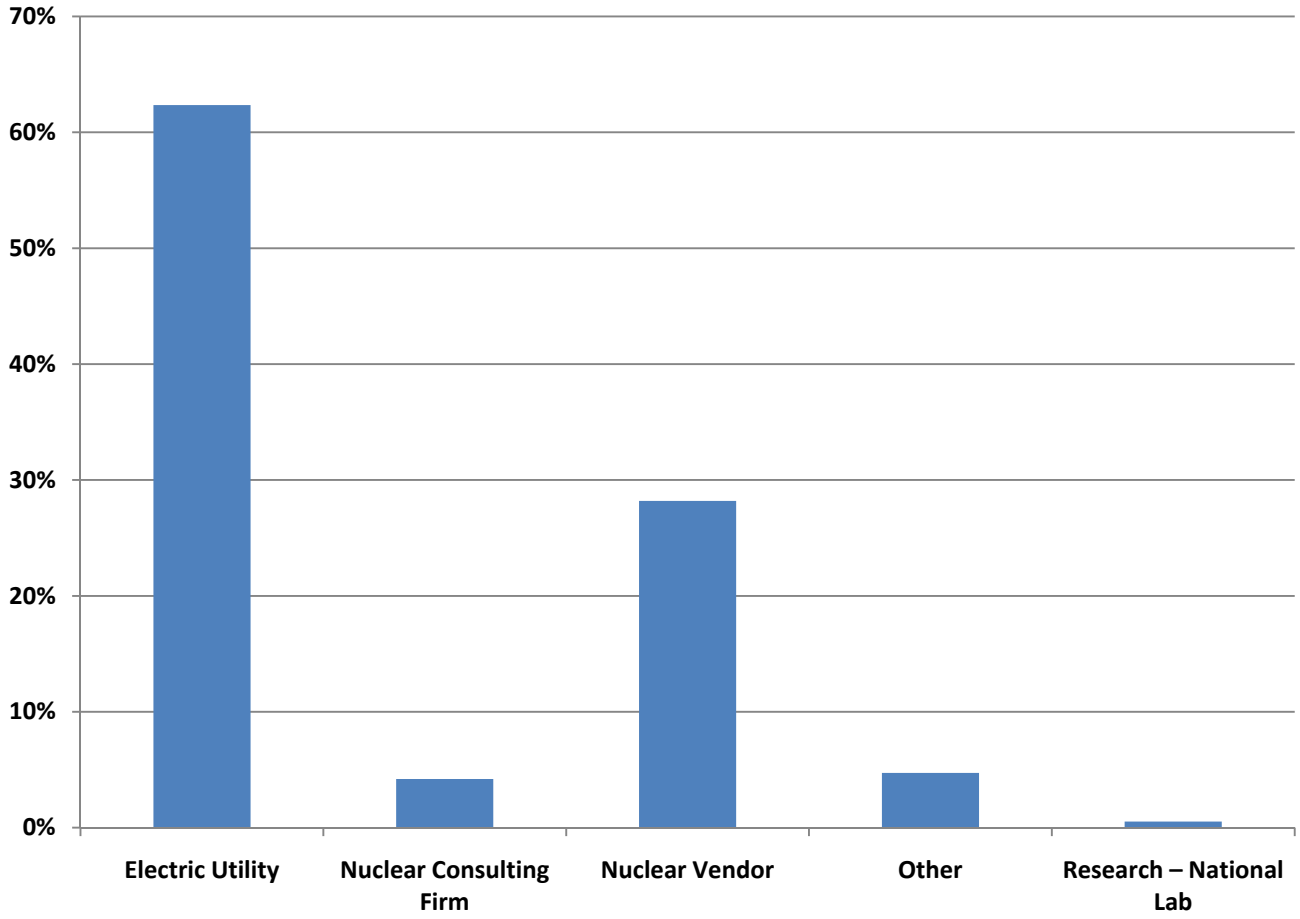
Figure 1 shows that most respondents are relatively new to the industry and are on the receiving end of the knowledge transfer process. Roughly two-thirds of respondents have been in the nuclear industry for less than five years. Approximately nine percent of respondents have ten or more years of experience.

Figure 2: Respondents' Current Job Functions



Most responses came from members working in engineering organizations, with the greatest concentrations from mechanical and nuclear engineering. Many other job functions were represented although with fewer responses.

Figure 3: Respondents' Company Concentrations



Over 60% of respondents work for electric utilities; this includes nuclear generating plants as well as corporate offices. Approximately 30% of survey responses came from members who work for nuclear vendors; this can include vendors of parts, labor, or analyses.

Survey Responses

What Knowledge Transfer Activities Do You Participate In?

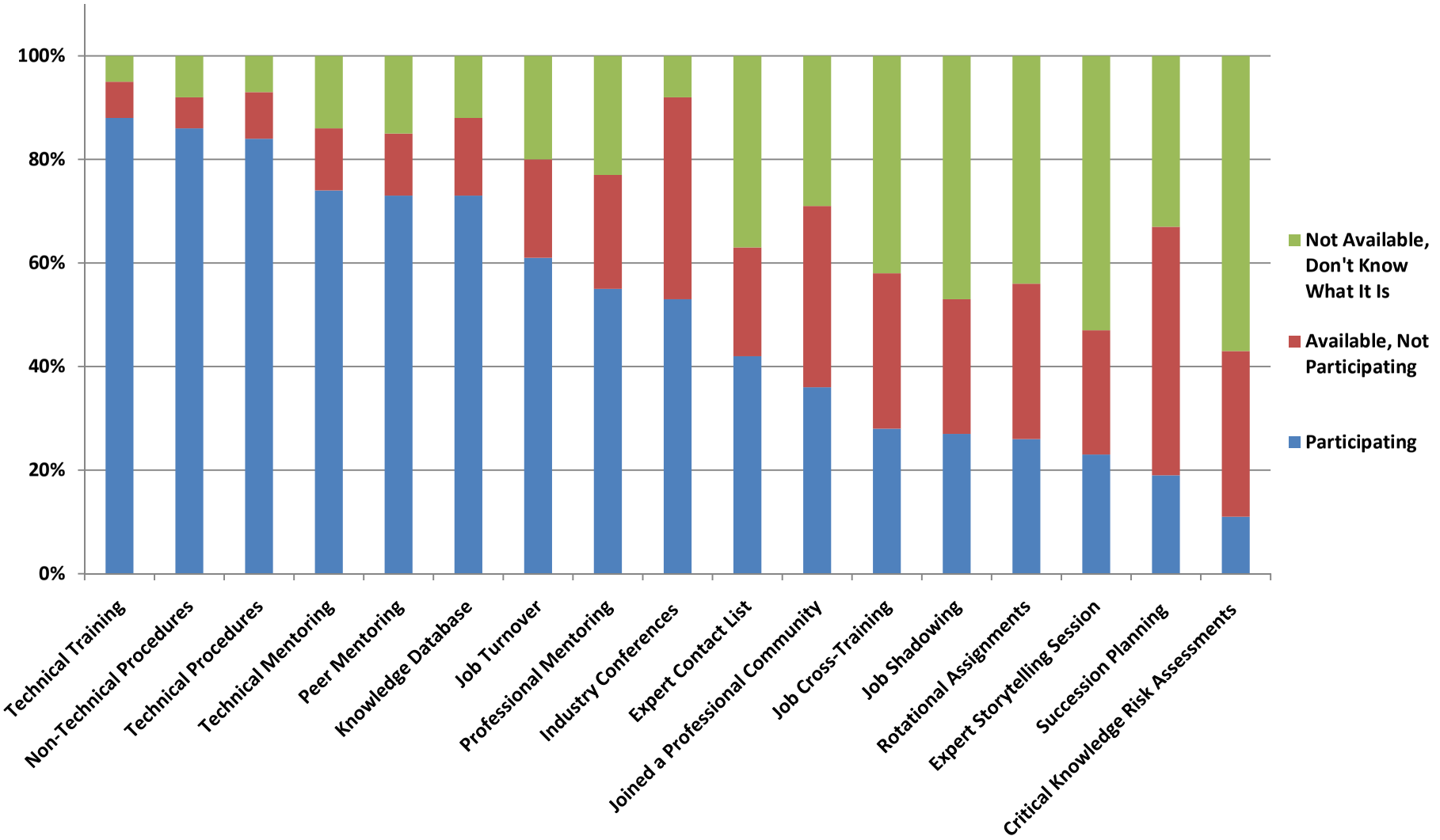
Statistical Data

Activities	Participating	Available, Not Participating	Not Available or Don't Know What it Is
Technical Training	88%	7%	5%
Non-Technical Procedures	86%	6%	8%
Technical Procedures	84%	9%	7%
Technical Mentoring	74%	12%	14%
Peer Mentoring	73%	12%	15%
Knowledge Database	73%	15%	12%
Job Turnover	61%	19%	20%
Professional Mentoring	55%	22%	23%
Attended Industry Conferences	53%	39%	8%
Expert Contact List	42%	21%	37%
Joined a Professional Community	36%	35%	29%
Job Cross-Training	28%	30%	42%
Job Shadowing	27%	26%	47%
Rotational Assignments	26%	30%	44%
Expert Storytelling Session	23%	24%	53%
Succession Planning	19%	48%	33%
Critical Knowledge Risk Assessments	11%	32%	57%

Comments

Unsure if Cross Training is available
Self-study material available
Storytelling Power Point presentations available on internal website

Figure 4: Knowledge Transfer Participation



How Effective Is Each Knowledge Transfer Activity?

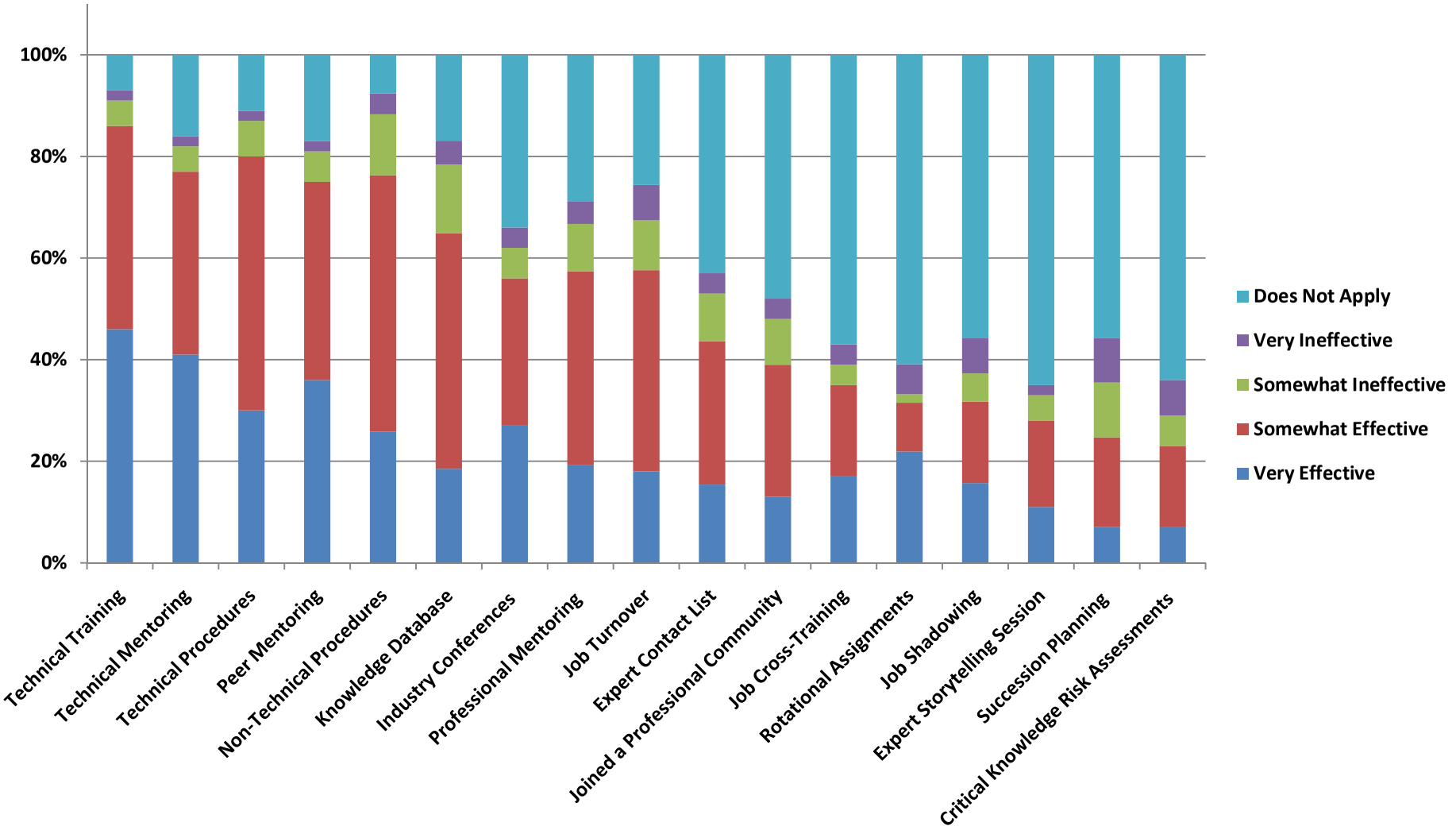
Statistical Data

Activity	Very Effective	Somewhat Effective	Somewhat Ineffective	Very Ineffective	Does Not Apply
Technical Training	46%	40%	5%	2%	7%
Technical Mentoring	41%	36%	5%	2%	16%
Peer Mentoring	36%	39%	6%	2%	17%
Technical Procedures	30%	50%	7%	2%	11%
Attended Industry Conferences	27%	29%	6%	4%	34%
Non-Technical Procedures	26%	51%	12%	4%	8%
Rotational Assignments	22%	10%	2%	6%	61%
Professional Mentoring	19%	38%	9%	4%	29%
Knowledge Database	19%	46%	14%	5%	17%
Job Turnover	18%	40%	10%	7%	26%
Job Cross-Training	17%	18%	4%	4%	57%
Job Shadowing	16%	16%	6%	7%	56%
Expert Contact List	15%	28%	9%	4%	43%
Joined a Professional Community	13%	26%	9%	4%	48%
Expert Storytelling Session	11%	17%	5%	2%	65%
Critical Knowledge Risk Assessments	7%	16%	6%	7%	64%
Succession Planning	7%	18%	11%	9%	56%

Comments

The expert storytelling sounds very worthwhile

Figure 5: Knowledge Transfer Effectiveness



Participation vs. Effectiveness Comparison

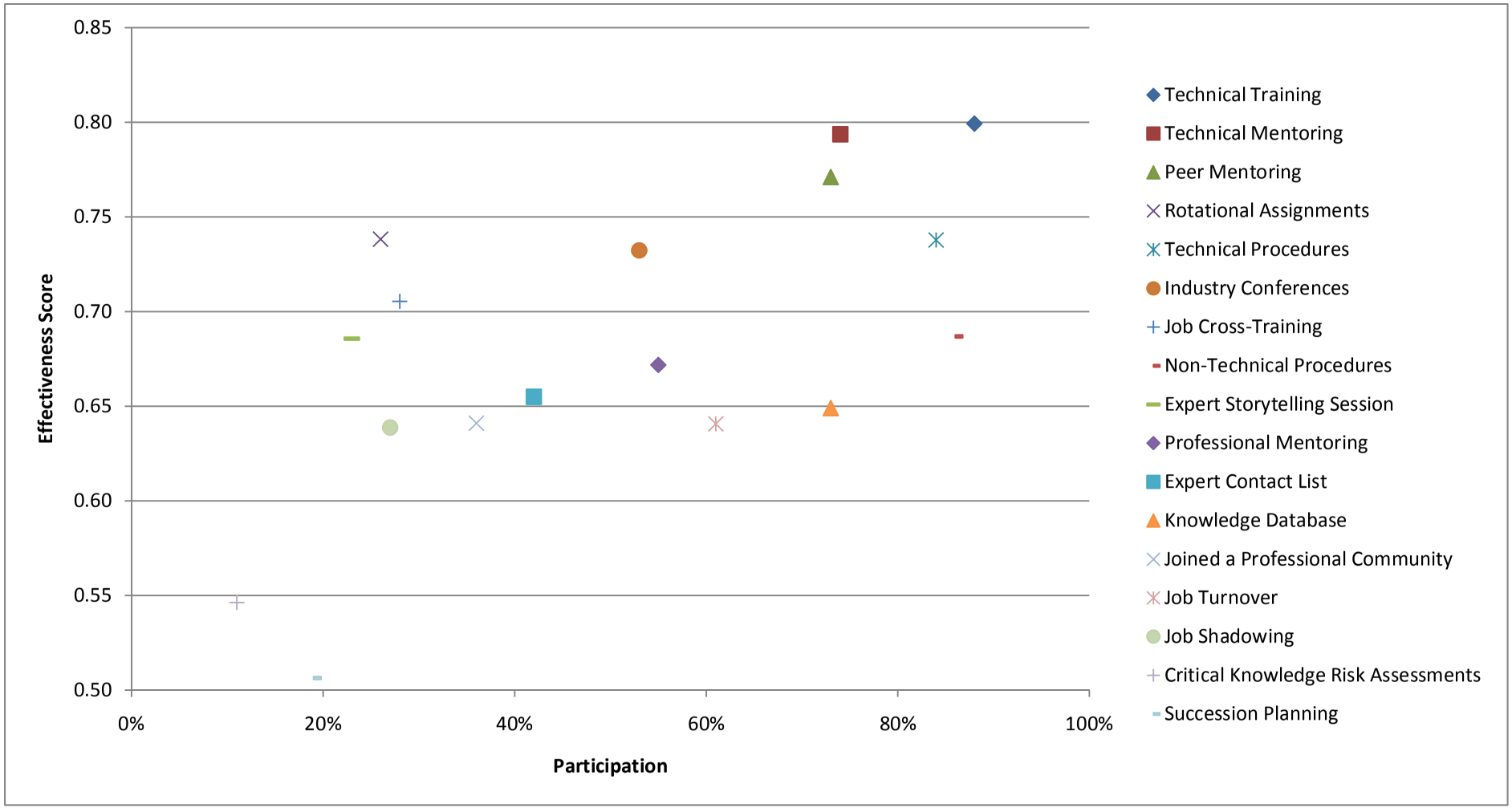
The effectiveness data for each knowledge transfer activity was averaged by applying a score of 3 to responses of "very effective," a score of 2 to responses of "somewhat effective," a score of 1 to responses of "somewhat ineffective," and a score of 0 to responses of "very ineffective." Scores were then normalized to a value of 3. Responses of "does not apply" were assigned a score of 0.

Participation for each activity is compared to its effectiveness score to determine any trends.

Statistical Data

Activity	Participation	Effectiveness Score
Technical Training	88%	0.80
Technical Mentoring	74%	0.79
Peer Mentoring	73%	0.77
Rotational Assignments	26%	0.74
Technical Procedures	84%	0.74
Industry Conferences	53%	0.73
Job Cross-Training	28%	0.71
Non-Technical Procedures	86%	0.69
Expert Storytelling Session	23%	0.69
Professional Mentoring	55%	0.67
Expert Contact List	42%	0.65
Knowledge Database	73%	0.65
Joined a Professional Community	36%	0.64
Job Turnover	61%	0.64
Job Shadowing	27%	0.64
Critical Knowledge Risk Assessments	11%	0.55
Succession Planning	19%	0.51

Figure 6: Participation vs. Effectiveness Comparison



Free Response Questions

Responses to each question were categorized and tallied. Specific comments, along with frequency of similar comments, are also provided for each category.

Please explain any challenges that you encounter with your knowledge transfer program.

Category	Comments Received
Time/Workload	41
Formal Training Availability	1
Location/Travel	1
Timeliness	4
Documentation	11
OE too specific	2
Quantity of information	4
Management support	7
Lack of Resources- Personnel	6
Identifying retirement/turnover	22
Knowing Who to Contact	5
Computer Applications	1
Variety of Resources	1
Learning Opportunities not offered	1
No formal program/participation	65
Knowledge is expected/contracted	3
Willingness to share information	1
Allotting correct resource for KT capture	1
Early promotions/Successor Planning	3
Identifying knowledge to transfer	2
Generation gap	5
Standardization throughout company	2
Technical focus	1
Maintenance of Databases	1
Attitude of new hire	1
Recognizing value added	5
situation-driven	3
Computer skills of mentors	2
Long time since new hires	2
No action/urgency	3

Time/Workload	Frequency
The message of no confidence sent to new employees by the organization. Practices of hiring retired employees back as contractors or calling them instead of the new employee in the event of failed equipment is a great example of this.	1
Due to a focus on driving schedule, jobs that would've been a good learning opportunity are often given to the person who can do the job the fastest. This is usually the "expert", not the recent graduate.	3
This is a self-driven program that seems to fall to the wayside when daily work becomes a higher priority.	18
Turnover	
Aging workforce...waiting to hire new employees until after current employees retire. Should be hiring 1-2 years in advance.	6
Retirees often do not identify their last days until too late. Knowledgeable engineers are retiring before their replacements are hired.	5
I was providing knowledge to a recent promotee that I feel did not have enough experience at their prior job to tackle this new assignment (presumed knowledge when new to nuclear field).	3
No formal program	
The knowledge transfer program is not very structured and that hinders its effectiveness. There is a progression plan, but it is outdated and isn't consistent with current databases, procedures, etc. There is no "owner" of the progression plan.	4
There are not enough knowledgeable people versus new employees.	3
I find it is more common to be thrown into a role to learn as you go. This forces the repetition of common mistakes and unnecessary growing pains in the role.	7
Documentation	
There are a lot of things that are routine and second nature for the veterans here that are not intuitive for the new hires. This type of knowledge is the type that is going to be lost.	1
Maintaining information is very time consuming with no formal training of computer tools used for day to day tasks.	1
Content is not indexed; content is scattered in various forms; location of content is not known to all employees who could benefit from access. Documents older than 10 years are not available online.	2
The younger generation employees are asked to populate the KT database, but it is the 'older' generation who has the knowledge that should be doing this. Often, their lack of computer aptitude prevents documentation.	2
Management Support	
Appears to be supported at corporate level but not at local level management.	1
There is an urgent need and acknowledgment for a KT program, but little or no action taken to fill that need.	1
Management says we have a KT program, but I have seen no evidence of it.	5
General	
I feel as though the "experienced" generations do not want to share knowledge with the younger generations for fear of being easily replaced.	1

Mentoring: Please provide your personal insights on the mentoring opportunities you have received. Please provide both positive and negative examples.

Category	Comments Received
Time	21
No formal process	31
Be proactive	10
Helpful	27
Ineffective	6
Difficult to establish	2
Not/Rarely used	5
Informal is most effective	14
Peer mentoring is positive	6
Requested mentor, never got one	5
Nearby helps	2
Mentor "too new"/lacked knowledge	4
Too social/Negative	4
Mentor not receptive to feedback	1
Not enough mentors for new employees	6
Mentor expectations not communicated	4
Mentor left for new job, not replaced	4
Mentor must be willing	13

Time	Frequency
I was assigned a mentor in my group who basically refused to mentor. Often mentors are too busy to take time to teach.	6
This is an informal relationship and I often feel like I am imposing on my mentor as they are in a Senior Management Position.	1
No formal process	
A lot of times the knowledge of the mentor is in his/her head for specific job training. Thus, they do not always remember every important "trick of the trade" when you talk to them. It can take many interactions with them before the needed knowledge can be transferred. First, this is ineffective and second, without a lot of this knowledge written down it has a much greater chance of getting lost or misconstrued. Many of the formal documentations are not sufficient and these mentors/experts are needed to clarify and perform the work. These mentors/experts are often the only ones who can answer questions when the analysis does not turn out as expected because they are the only ones who truly know the material. Many of the experts realize that they need to transfer their knowledge and I have found many to be willing to take the time and share their knowledge for which I am very grateful. The key is that time needs to be set aside and encouraged for mentoring and knowledge transfer.	1
Mentors are only assigned to engineers/operators. Seems discretionary.	3
The mentoring program is ineffective because the mentors are mentors in name only. Actual mentoring doesn't occur.	3
Low level technical mentorship is good. Career development mentorship by a organizationally higher ranking sponsor has been difficult to arrange and get follow through with.	1

Cert guides are great because they let you know exactly what needs to be performed and known in order to be qualified at the specific job. In my experience, the only time cert guides are signed and discussed is when there is an upcoming challenge to man-power for the task or if the trainee demands time to get mentored.	1
Be Proactive	
Too many of the people I am mentoring want me to do the work for them instead of them getting off their butts and doing for themselves.	1
When you have only one main mentor, you pick up their habits and may not develop your own outlook.	1
Helpful	
Mentoring new hires and interns/co-ops is the best way to grow employees and integrate them into making the business successful.	10
I have enjoyed my mentoring experience. My mentor has done a good job of passing me along to the subject matter experts in a field to allow me to gain a better knowledge than what he can teach me. When a project is near completion, he makes me explain what I have learned during this project so I am not just working the project to get it done, but also encouraging me to learn.	1
All of my qualifications required official mentoring, and I continually receive mentoring throughout all of the tasks I perform in order to improve my performance.	3
I thought we had a very good 6 month/1 year mentoring program. We paired up a young engineer with an experienced engineer and had them work with each other and meet once a week. I was able to work with my mentor on a job and I felt that it was a great experience and really helped me learn a lot more and perform my job better.	2
There has been a lot of value in the mentoring for interpersonal relationship development.	8
Mentoring is a great opportunity to see the processes and procedures in action.	
We employed an optional half-day class on "mentworking" - combination of mentoring (both ways) and networking was available with inside company resources.	1
Informal Mentoring	
A mentor was never officially assigned to me. I sought out licensed individuals who displayed behaviors desired by my management.	6
Assigned mentoring has been poorly demonstrated. Telling someone that they need to study these 10,000 pages and have them all memorized is not a way to motivate anyone.	3

Shadowing: Please provide your personal insights on the shadowing opportunities you have received. Please provide both positive and negative examples.

Category	Comments Received
Very effective	18
No opportunities	56
Not utilized	12

Very effective	Frequency
I asked to follow the maintenance crew that work in my system for about 2 weeks. That was very helpful to see what they did in the field and their work process.	12
I have and am still job shadowing my mentor, and this has helped me learn the intricacies of the job.	3
I have had interns/co-ops shadow me. Job shadowing is less formal and helpful in building a network of those who can trust to help you when you need it.	1
I have had the opportunity to job shadow my section manager and department manager in their meetings. This was insightful, as I got to see the types of issues that they discuss at their weekly meetings and the importance of them.	2
Not utilized	
In a technical environment shadowing can only act as an introduction to subject material and as a model for how to act when performing tasks. It, however, fails to actually teach the individual anything of a technical nature.	1
No opportunities	
None to speak of, even when mentioned and asked to accomplish, either the work load does not support it (mapower) or no one has been willing to allow shadowing.	5

Technical Training: Please provide your personal insights on the technical training opportunities you have received. Please provide both positive and negative examples.

Category	Comments Received
Does not prep you for job/too general	17
Always helpful	45
Does not exist/inadequate	36
Not beneficial	5
Timeliness	11
Trainers inexperienced/quality inconsistent	27
Time	5
Poorly attended	2
Saving presentations for future use helpful	2
Required	5
More hands-on	10

Always Helpful	Frequency
I have received all of the required technical training for my job position. My company has been very supportive by letting me attend professional development conferences.	3
I have received technical training very specific to my job function.	3
Because my job in the industry requires only minimal technical training, the one piece of training I received that I found most beneficial was the introduction to the nuclear power industry for non-technical employees.	2
Any and all technical training in operations and maintenance work practices, fundamentals, are the key to understanding the industry.	5
Technical training is very good at teaching things that procedures can't teach someone.	3
Does Not Exist/Training is inadequate	
Technical training is outstanding if you are in Technical department. I am not in a Technical Department so I do not receive any of that training.	3
Technical training was robust and very applicable to the job functions which were training. The frequency of this training and the feed pipeline to support retirement and attrition is inadequate.	3
This is really lacking in my company. There is almost no technical training. The majority of the training seems to center around procedures and how to follow them, rather than why they were written the way they were, what the technical basis is behind them etc.	1
I have received a lot of general technical training about nuclear reactors and the industry but it does not help in day-day work.	8
Typically, this is a good means of transferring knowledge because it is in a structured manner aimed at transferring a specific set of knowledge. Usually, there is an evaluation as part of the training to ensure the material is transferred properly based on the initial objectives. Often the group setting used is conducive to questions, and the trainers are usually required to get back with answers to questions asked.	3
It's becoming more difficult to get management to agree that this training is necessary due to budget restrictions.	5
Trainer quality inconsistent	
Useful technical training is available, but only from the vendors supplying the test equipment I use in my position. Ideally, an organization would be available to develop and provide whatever technical training is necessary to help someone do their job. That's not the case where I work.	4

Technical training was outdated and taught by un-trained instructors (mostly experts with no teaching skills).	4
Timeliness	
Technical training seems to be haphazard or slipshod in many areas. Organizations are having difficulty training new employees because they haven't trained new employees for many years and they have forgotten how.	3
Technical training seems to take place only when we are due to re-qualify on something. A continual training schedule would be beneficial to keep proficient at the tasks that we do on a daily basis, and for those tasks that we never have to do on a regular basis.	2
The first 2 months at the company is spent in a classroom on technical and non technical aspects. In theory this would be a good idea but there is not enough connection to your job function at first and by the time you reach your home base, you will probably forget 90% of what you have been taught.	3
Hands-On	
Most of the time the training provided by our company are presentations per video conference. These can be very dry and boring. If it were more interactive / hands on it would be more effective.	1
I find that technical training is too often spending four straight hours staring at slides, which are useless after the presentation is over.	5
Applied training is better for complex processes. It gives a person a better chance to remember the concepts and processes.	3

Job Turnover: Please provide your personal insights on transitioning into a new job and the turnover you have received. Please provide both positive and negative examples.

Category	Comments Received
Does not exist/inadequate	72
Adequate	21
Lack of resources/time	15
Management support needed	4

Does Not Exist/Inadequate	Frequency
Generally seems that there is little job turnover. Usually a job is not filled until the person is already gone.	9
Turnovers not necessarily from experienced person (they have been in the position for <1 year).	3
"Tribal knowledge" has been a chronic problem. Tasks that have always just been done, have not been documented and that has been difficult to figure out.	5
Document retention is not formalized and up to the individual. Most of the time individuals in key roles don't know what is important to keep for their replacement. All turnovers are informal and completely up to the individual. No formal process exists.	20
Job turnover consisted of no up-front guidance. Attitude was 'come to me if you have any questions'. This tends to be overwhelming with new work and does not inspire confidence, and can lead to poor work quality.	4
There was no company directive or procedure to follow for job turnover of this nature. Someone coming in with less time, with less initiative, and with a less accommodating mentor might have a very difficult time getting a proper job turnover.	1
Without job turnover the first few months in the job are tremendously frustrating because you're finding out the mistakes that could have been avoided.	2
Adequate	
Ample time allotted to provide questions, oversight of the person assuming new role, and flexibility in work schedules.	3
The previous holder of my position is still working within my group. This has made turnover very robust and is an ongoing process, as the previous position holder remains available to answer questions that come up during performance of my duties.	9
I was lucky that I had about 2-3 months of transition time with the person I was taking over for. This allowed for me to work on my qualifications and she would go over a specific job assignment in detail every day. I had a calendar with all the specific job functions I would go over on a specific day. This was very helpful!	1
Lack of Resources/Time	
This process also needs time. 30 years of experience can't be transferred in 1 or 2 years.	5
I had one experience with a job turnover and it was great! The person who turned over a program to me gave me a checklist that I still reference today. The checklist had current program condition, ref documents, vendor/industry contacts, repetitive/outage activities, backlog items, and long range plans/issues. I don't know that this is some standardized checklist because I've never seen another one like it before. I think this was example of a person who was on top of their game instead of a good practice at my company.	1
Most of the time this is rushed with no set plan written down for the turnover process.	1
Turnover processes are not well defined (each person is different), and is not often given allowance to allow the exiting person proper time to complete.	2

Typically, the person is so overloaded with leaving and closing out projects that they don't spend the time needed to just write stuff down. At least a month buffer should be added from when the last project deliverable is due and when the person is scheduled to leave.	3
Management Support	
There is always a feeling of a fish out of water when transitioning to a new job. I have had managers that provide specific expectations and a training plan (which is helpful) while others that make you figure out your role/responsibility/training on your own. The former is preferred to the later.	2

Procedures: Please provide your personal insights on the availability and quality of the procedures you have access to. Please provide both positive and negative examples.

Category	Comments Received
Accessibility	56
Compliance	6
Ambiguity	31
Adequacy	44
Outdated/incorrect	9
Cumbersome	10

Accessibility/Adequacy	Frequency
Our companies' procedures are well written, easy to understand for the most part, and are quite available.	25
Since I am young in the nuclear field, availability of procedures has given me more confidence, better understanding at my pace and being able to work independently while referring for any information without disturbing knowledgeable personnel.	1
Procedure reviews are a great tool for learning processes and job responsibilities. Many times looking at an older procedure which has been superseded brings out a lot of questions or more fully explains a process that has become automated. Many times you can get a lot of benefit from reading an older procedure and gain a lot of the knowledge that the older generation has from having to perform the outdated processes. The questions answered from doing this process fill in knowledge gaps that would otherwise fall through the cracks.	1
We have exhaustive availability to procedures within our company' intranet. However, the database is poorly organized, with a loose file structure and weak search engine.	5
The issue that we sometimes run into is when we need to work off a client's (utilities) procedures and we don't have access or we don't get all the applicable procedures. We need to either get specific instructions from the client for which procedures we need, talk to other employees who have more experience with that client, or get access to the client's database so we can access and download procedures that we need.	2
Administrative procedures often have a hard time fully incorporating all of the information necessary to complete the process they are directing. This requires the procedure user to find the knowledge elsewhere which can be difficult.	3
Procedures are very well written. Seems to be a struggle with dependence on procedures and also procedural compliance vs. intelligent compliance. If a procedure is followed verbatim and an event occurs, the follow up will usually state that intelligent compliance should've been used. On the other hand, if "intelligent compliance" was used and an event occurs, the follow up usual states "lack of procedural compliance." Procedures, for the most part are very good, however, there continues to be confusion as to when "intelligent compliance" is acceptable (at this point, it seems that it's acceptable as long as there is no resultant event).	3
Ambiguity	
The procedures I have access to are usually reasonably clear, but there is usually some ambiguity in interpretation somewhere in them.	5
Each procedure author is different, and therefore each procedure reads differently. Some procedures read like a Japanese instruction manual for putting a motorcycle together.	1

Many of the formal documentations are not sufficient to perform engineering work. They are often general guidelines and criteria needed for the analysis. However, there are often not details enough to perform the work on your own without a mentor. Many procedures should not be too detailed but then the detailed information needs to be available somewhere else. Another problem, it that different procedures can be in many different locations. I was several months into a job before I knew of procedures I was supposed to be following for my work. Everyone assumed I just knew. I have found very few procedures in my experience actually helpful for engineering work. Everything I have learned has been through a mentor teaching me and showing me how to perform the analysis.	1
Procedures are very high-level and not a handy step-by-step.	1
It is difficult to know when there is a procedure and when there isn't. A procedure may exist but you may be unaware of it.	4
Administrative procedures have to cover such broad applications that the procedures themselves have become practically useless.	2
Procedures are a good way to walk through 'how' to do something, but it does not always answer the question of 'why' to do something.	4
Project specific procedures are provided, but these aren't always an all inclusive list of the procedures necessary. (i.e. calculation procedure provided, but not operational procedure.)	4
Outdated/Incorrect	
We have a lot of procedures, most of which are good. However, instead of revising current procedures to address changes/clarifications/etc., we come out with new procedures. As more and more procedures are released, it dilutes the content and becomes overwhelming. We need to consolidate our procedures and make them consistent across the company as much as possible.	1
Procedures are being revised often, so it is hard to keep up with the changes. (3)	3
Either lack of ownership or complacency was evident in the numerous procedure errors and enhancements that were needed when I first began using procedures in my job.	1
Procedures are mostly ignored in lieu of guidelines or "this is the way we do it" mentality. We primarily depend on others to make sure that our guidelines match the procedures then follow the guidelines. Furthermore, following the procedures will absolutely not necessarily result in a high-quality product. Procedures only cover the bare necessity and quality really depends on many other factors. Granted, ignoring the procedures would be even worse.	1
Cumbersome	
My company has too many procedures that specify how to do all sorts of tasks that could be figured out without procedures. The use of procedures adds unnecessary time and cost to projects.	1
Procedures are complex. While trying to prevent 15 years of previous problems, procedures have grown. A simple task makes one responsible for over 100 pages of procedure.	3

If you could fix one thing about your organization's approach to Knowledge Transfer & Retention, what would it be?

Category	Comments Received
More technical training	16
Rotational Position	15
Formal Mentor Program	47
Storytelling	3
Formal KT program	22
Successor planning	25
Turnover	24
Documentation	13
Management Priority	27

Formal Mentor Program	Frequency
Choose mentors who are knowledgeable AND have the skills necessary to train and teach, as well as a supportive attitude.	3
Tie goals to job evaluation.	3
Successor Planning	
Get the new people involved as leads and have the senior folks peer check them, you learn by doing not reading or watching.	2
Have senior people evaluated for their knowledge transfer and tie it to their performance evaluation.	2
More time, funding, resources available to do this on a working level.	5
Turnover	
Be more proactive and enforce this process throughout the company, hire replacements before retirees leave in order to provide better one-on-one training and turnover.	14
General Structure and funding. The company needs to invest in more people so that time can be spent retaining the knowledge of those retiring in the future.	12
Give enough time for incoming employees to pick up knowledge from employees getting ready for retirement.	13
Give older employees more time and resources with which to turn over knowledge. Create a turnover skeleton/suggestion list to stimulate the process.	4
Have exiting individual list their top 10 concerns technical, admin, job accomplishment (day-to-day), and recommended solutions.	2
Formal KT Program	
A more visible process with much more discussion on a weekly basis by senior members of organization. Having a single point of contact who is actively engaged in the process would be a great benefit.	3
Fully implement it. We have a procedure, but to my knowledge we have not used it in our group.	3
Instead of developing the Knowledge Transfer program behind closed doors, our company should be soliciting the input of newer employees who have just gone through the process or are going through the process now.	3
Have a ROOT CAUSE evaluation study performed on the process to root out the shortcomings in the program. This study would outline the failed barriers, inappropriate actions, perform benchmarks, perform interviews, and many other issues with the program	1
Management Priority	
Do what the executives and top level managers say we are doing. Make the program	3

visible, used and useful.	
Willingness to pay for 2 people to do one job: the experienced person & the newbie....they talk about it, but don't really do it.	2
KTR has to be owned by very senior staff in the organization (ie Chief Learning Officer), not an individual contributor.	2
We must have 100% buy in to show that upper management backs that decision 100%. Currently we are running into comments such as "budget does not support the program" or "we don't have the time to support this"	1

Feedback for NA-YGN

This section provides the answers to the question listed below, asking the survey respondents to provide feedback on how NA-YGN could improve and do a better job supporting the industry.

What do you think NA-YGN should do to facilitate better Knowledge Transfer & Retention practices within the industry?

Category	Comments Received
Identify challenges	2
Propose Solutions	3
Identify Best Practices	18
Cross-Chapter Support	2
Advocate for hiring	4
Audit programs	4
Identify knowledge to be retained	1
Assist with documentation	1
Industry-wide Peer Mentoring	14
Create KT&R programs/standards	22
Communicate urgency to Upper Management	8
Promote early hiring	2
Maintain membership expertise list	2
Create a database for KT&R	4
Entry employee guide	1
Encourage writing skills	2
Include all in NA-YGN events	5
NA-YGN KT events	24
Share survey results	15
Nothing NA-YGN can do	5
Rotation Program	2

Create KT&R programs and standards	**Frequency**
Come up with programs companies can use to better facilitate knowledge transfer.	3
Create a benchmarking standard and challenge companies to meet it.	9
NA-YGN can assist in focus groups to determine what a standard knowledge transfer program would look like. Since we're the people going through the frustrations of having to learn the ins and outs of our jobs in a short amount of time so we can be the future leaders, I think we're best suited at coming up with good ideas on how it should be done properly. I also think NA-YGN could do a few sessions on critical thinking, to help the young generation understand that procedures are a good thing but depending on them too much can be a bad thing if we don't know how to interpret the results properly.	1
How To's on setting up knowledge transfer events/processes would be great for groups that have not have a successful/present knowledge transfer program.	1
Develop a larger voice. Show what the cost will be to have inexperienced people operating without KT&R....another TMI-2??	2
NA-YGN KT workshops	
During annual conference, it's nice that many speakers talk about the benefits of nuclear, but we know this, and don't need convincing. The speakers should focus on what they've learned being a part of this industry and how/what they've done (within	1

training/knowledge transfer activities) to get to where they are at today.	
Encourage local chapters to hold knowledge transfer meetings (Q&A style presentations) on various topics.	1
Have formal sessions geared to establish Knowledge Transfer programs with the utilities that are in danger of losing needed talent.	1
Identify Best Practices	
Create an Official Recommendation that would be adopted by the industry for minimum training/knowledge exposure similar to how accreditation agencies have minimum requirements, but this would be Best Practice for industry to adopt the NA-YGN Recommended Minimum Training Guidelines. Example: Year 1 in a new position: x number of hours of mentoring + x # hrs internal training + x # hrs internal training + x # hrs turnover with incumbents or peers.	1
Peer Mentoring	
NAYGN can be a driving force to try to obtain mentors for new employees/new members of NA-YGN who don't have one yet.	1
Promote more job shadowing-type opportunities within different organizations for the nuclear industry. "INPO for a day" or "NRC for a day" would be a great opportunity.	1
Share survey results	
This survey is a great start and presenting it to leadership should give great feedback on the state of the industry.	6
Be the voice of the young professional. Use the survey results to determine what areas companies fail at most and put your weight behind advocating for those improvements.	1
NA-YGN should put more effort to convey the results of your research to every employee and manager in the industry.	1
General	
Have a website where all NA-YGN members can have a profile of their job titles/functions and interact and share information.	2
Start a monthly newsletter with a specific topic to be discussed and commented on by the NA-YGN members.	1

Conclusions

Demographics

The majority of respondents to this survey have four years or less experience in the nuclear industry (65%), have engineering backgrounds and perform engineering related job functions (66%) and work for electric utilities (62%). Conclusions drawn from this survey are biased toward this group.

Participation

The most participated in knowledge transfer activities are technical training (88%), use of procedures (technical, 84%, and non-technical, 86%), mentoring (technical, 74%, and peer, 73%) and use of a knowledge database (73%). The most underutilized knowledge transfer activities, the ones that are available but the respondents are not participating, are succession planning (48%), industry conferences (39%), professional communities (35%), critical knowledge risk assessments (32%), job cross-training (30%) and rotational assignments (30%).

Effectiveness

Knowledge transfer activities that are the most effective are technical training (score of 0.80), mentoring (technical, 0.79, and peer, 0.77), rotational assignments (0.74), use of technical procedures (0.74), industry conferences (0.73) and job cross-training (0.71). The least effective knowledge transfer activities are succession planning (0.51), critical knowledge risk assessments (0.55), job shadowing (0.64), joining a professional community (0.64), an expert contact list (0.65) and job turnover (0.64).

Participation – Effectiveness Comparison

Technical training, mentoring (technical and peer) and technical procedures have high participation and are effective. Industry conferences, rotational assignments and job cross-training are effective, but have low participation. Non-technical procedures, use of a knowledge database and job turnover are not very effective, but have a high participation.

Free Response

The two biggest challenges that respondents face in their knowledge transfer activity are a lack of time due to a high workload and a lack of a formal program that hinders participation. These challenges were echoed in the responses to the activity specific free response questions. Consequently, the top respondents' recommendations for improvement are more structured and formal knowledge transfer activities backed with higher management priority.

Feedback for NA-YGN

The top recommendations for NA-YGN to better facilitate knowledge transfer activities within the industry are holding knowledge transfer events, identifying best practices and creating programs/standards for knowledge transfer activities.

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Acknowledgements

We would like to thank all of the team members whose effort in making this a reality was invaluable. Most of all we would like to thank the participants who volunteered their time so that the voice of the youth generation in nuclear could be shared to the nuclear industry.

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