

Thinking like an Architect

By Kyle Gabhart

Architects within the business, technology, and enterprise arena have a particular ability to craft solution designs that satisfy current requirements while still being consistent with future enterprise objectives. Furthermore, architects are able to envision and document the delta between the old system and the new system and to successfully chart a path for evolving the organization and its systems towards the desired future state. This paper explores the subject of architects and how they view and ultimately solve problems. As a part of this examination, the results of a recent survey regarding architecture aptitude will also be shared.

Architectural Thinking

The truth is that not everyone would be happy, fulfilled, and/or equipped for success in the role of an architect. All too often individuals are promoted into an architecture role because they are talented in their current capacity as a business analyst, application developer, or database modeler, or system administrator, and there is some belief that the next logical career move is to become an “architect”.

It takes a special set of abilities to be successful at crafting a solution with little or no direction provided by others (apart from a collection of goals, requirements, and an understanding of the status quo environment) and doing so in a context in which there are many variables and moving parts in play.

There are several key elements that serve as important architectural skills:

- Ability to deal with abstraction (even multiple layers of abstraction)
- Inclination toward pattern-recognition
- Holistic, synthesizing view of organizations and systems
- Rule-based frameworks for defining solution boundaries

This is not to say that every architect **MUST** have these traits, or that all of the traits must exist in equal measure. Instead, the point here is that these traits represent skills that lend themselves to an architectural way of thinking. To the extent that someone possesses one or more of these qualities, the development and management of architecture will tend to come more naturally.

Enterprise Artisans

Through a variety of anecdotal evidence, it became clear to me in the early part of 2011 that architecture aptitude had a strong correlation with other activities. Abstraction, patterns, synthesis, and rule sets are also important qualities of music, mathematics, and linguistics. In order to explore this relationship further, I created a survey to determine if any of these pursuits (music, math, and language/linguistics) exist to a disproportionate degree within the architectural community.

The survey consisted of 4 questions, with two aimed at weeding out non-architecture practitioners, and/or those for whom architecture does not represent a strong competency.

Question 1: Are you currently or have you previously been engaged in the design, development, or management of an organization's architecture (either at the enterprise, solution, or technical level)?

This is a filtering question aimed at weeding out responses from non-practitioners.

Question 2: If you have operated or currently operate in the role of architect, would you describe that role as being a good fit for you or a poor fit for you?

This is another filtering question aimed at eliminating the responses from individuals that self-indicate the role of an architect has not being a particularly good fit for their abilities.

*Question 3: Please select from the following list those activities and studies that you have engaged in for **1 year or more**.*

- *Mathematics (beyond basics required for a degree program)*
- *Musical Instrument*
- *Dance*
- *Singing (studying theory and sight-reading, not in the shower)*
- *Fluent in more than one language (oral/written, not computer)*
- *Linguistics*
- *I have not pursued any such activities for one year or more*

This is the heart of the survey aiming to explore the hypothesis that the pursuit of music (instrument, singing, dance), mathematics, and/or linguistics / language exist in a disproportionate number amongst architects.

*Question 4: What toys/games did you **primarily** play with as a child?*

- *“School”*
- *Trains*
- *Action Figures*
- *LEGOs, Blocks, Lincoln Logs, or similar building materials*
- *Board Games*
- *Video Games*
- *“House”*
- *Dolls*
- *None*

Building off of the core hypothesis, what connections, if any can be found in childhood play and individuals that eventually become architects? The reasoning is that prior to societal pressures and/or college preparations, there may be some natural tendencies toward architecture, or at least an architectural way of thinking, that is evident in children.

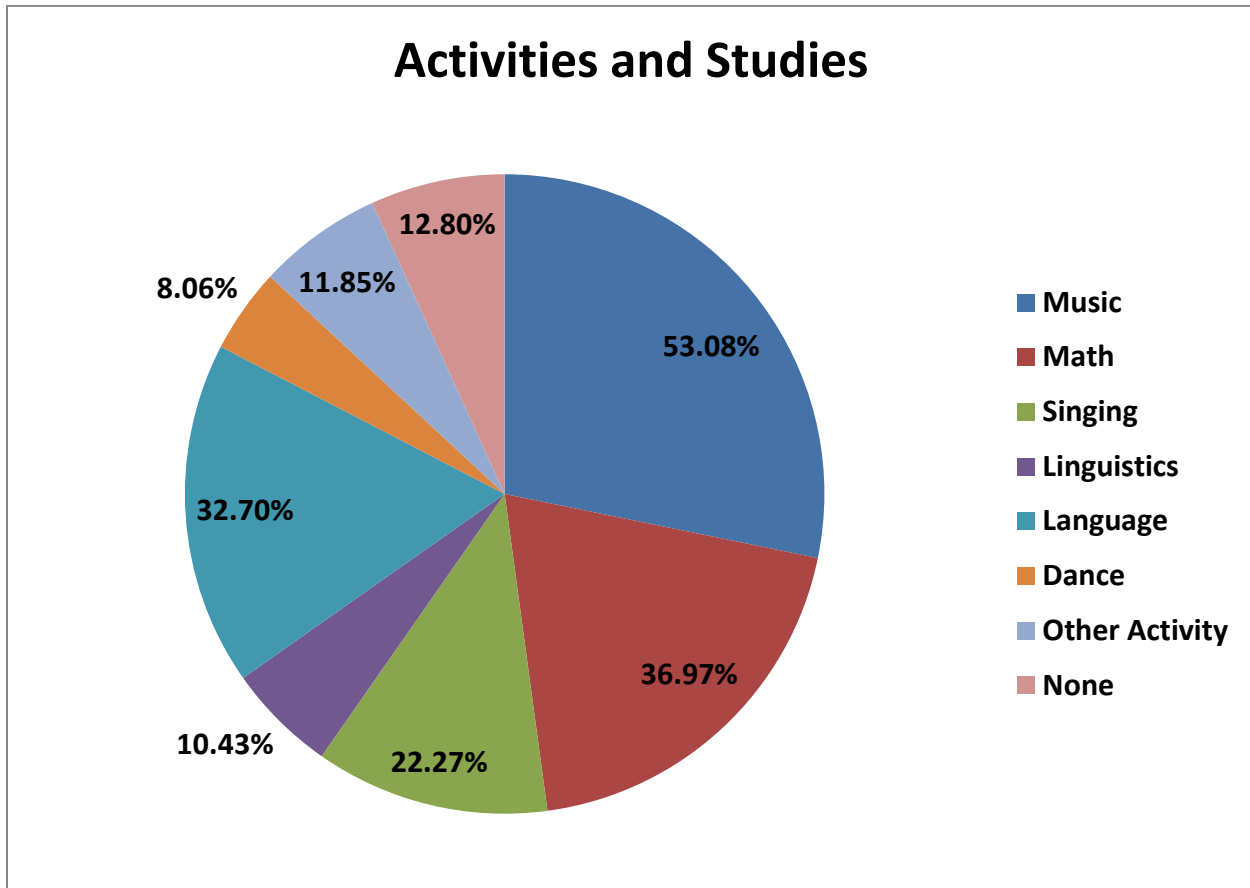
Survey Findings

Over a period of 6 weeks in the spring of 2011, the 4-question survey (described above) was conducted via the Internet. Multiple distribution mechanisms were used including LinkedIn, my blog at www.ArchValue.com, posting in Web Age’s monthly newsletter to clients, and personal requests to architecture practitioners via e-mail. These efforts resulted in over 200 responses.

Out of the 231 responses, 211 cleared the dual-filtering of **Question 1** (you’ve served in the role of an architect) and **Question 2** (architecture is a good fit for your skills). Those respondents which indicated previous experience in the capacity as an architect AND a self-assessment that architecture is a good fit, constitute the “filtered” respondents to this survey. Out of those 211 filtered responses, the following data was uncovered.

***NOTE:** All references to ‘respondents’ provided later in this document, should be understood to refer to only the responses provided by “filtered” respondents which answered in the affirmative to both Question 1 and Question 2.*

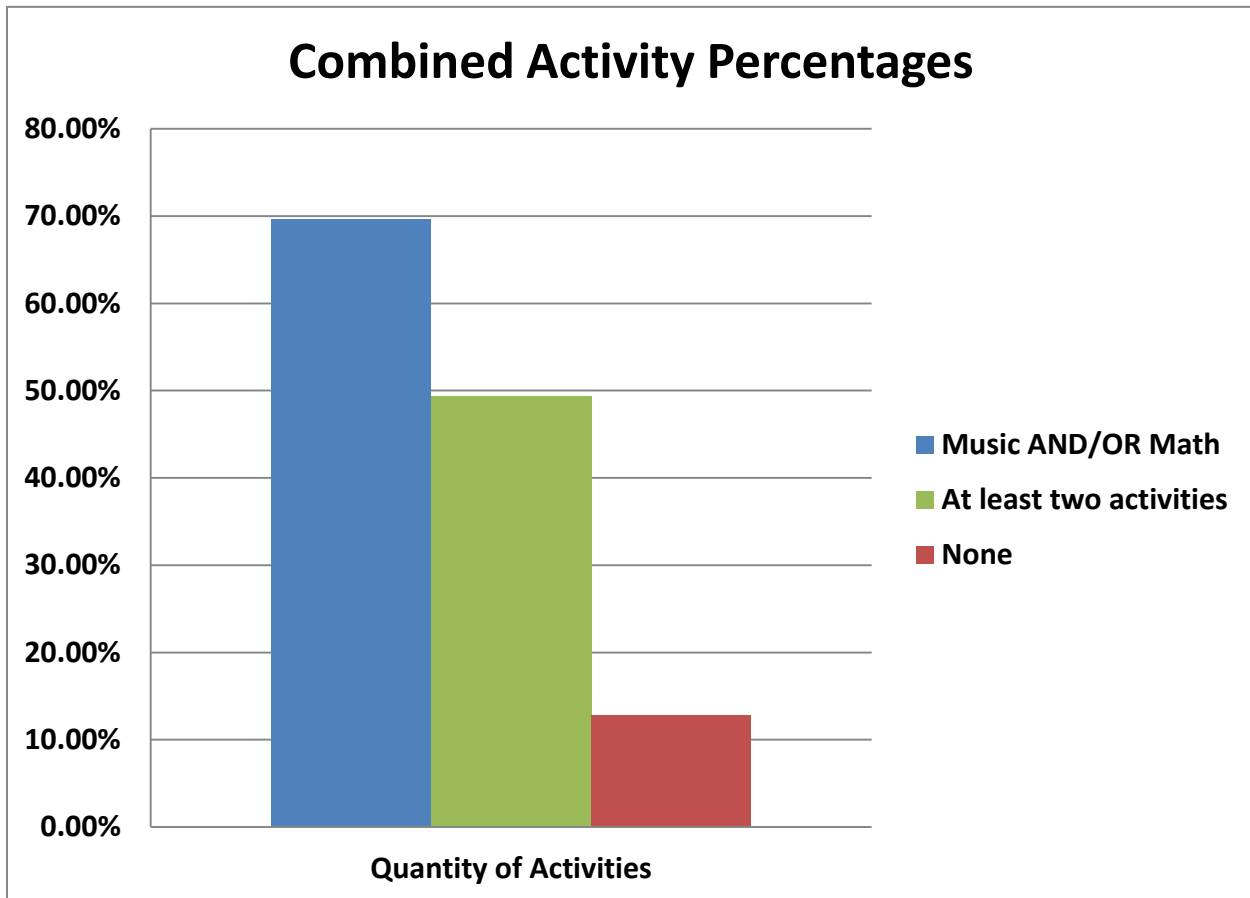
Question 3 - Please select from the following list those activities and studies that you have engaged in for 1 year or more.



The top three results

- 53.08% of respondents studied / trained with a musical instrument
- 36.97% pursued mathematics studies beyond the basics required by a degree program
- 22.27% engaged in formal singing activities, including music theory and sight-reading

Over half of filtered respondents worked with a musical instrument for 1 year or more. This is an interesting data point, but is it really significant enough to constitute a correlation with architecture aptitude? Not yet. In order to really examine this thoroughly, we need to return to the original premise. What makes architects different in the way that they think about and solve problems? Not every architect will pursue the same activities even if they have the same fundamental capabilities. So in order to dig a bit deeper, we need to look at the percentage of filtered respondents that have musical instrument experience OR mathematics (these are the top two activities) and finally, examine how many respondents engaged in two or more of the activities listed.



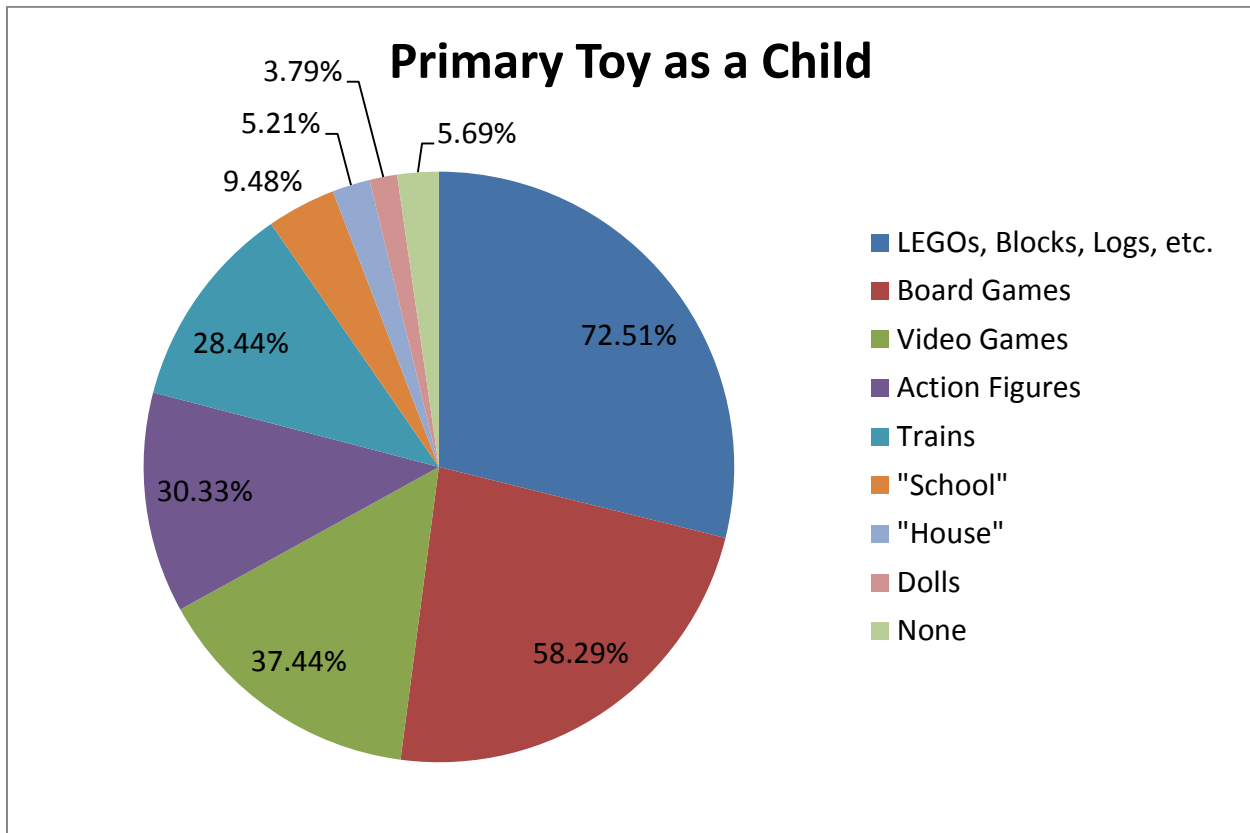
Multi-selection Results

- 69.67% studied / trained with a musical instrument AND/OR pursued mathematics studies
- 49.29% engaged in at least two of the artistic / mathematic / language activities listed
- 12.80% pursued no such activities for one year or more

So, less than 13% of survey respondents pursued none of these activities, nearly half of the respondents pursued at least two of these activities, and almost 70% studied either music OR mathematics (or both). Although a control group for comparison purposes would be preferable, these numbers alone paint a picture that demonstrates a significant correlation between the pattern / synthesis / abstract / rules-driven nature of architecture as well as music and math. These data points line up with the anecdotal evidence I had previously collected and support the core of my original hypothesis.

I was a bit surprised to see that linguistics received so few responses (10.43%), but when combined with language (32.70%) indicates that the language / linguistics portion of the equation is also significant and warrants attention.

Question 4 - What toys/games did you primarily play with as a child?



The overwhelming indication here is that building-style toys (LEGOs, blocks, Lincoln Logs, etc.) were a favorite toy of those individuals that eventually grew up to become architects. Could it be that the abstract thinking and pattern-recognition that is inherent in building-style toys was already being developed and enhanced at such an early age? The second contender is board games, which has a strong component of rules sets and also pattern-recognition. Here again, the impressionable mind of the future architect may already be creating mental categories, placeholders, and thought patterns for future architecture activities.

So What?

Apart from the 'aha' aspect of this data, there is the obvious question regarding the application of these findings to generate real value for an individual or an organization. There are three essential points to take away from this study.

1. **How an architect thinks** – Architects tend to think in terms of abstraction, patterns, synthesis, and certain rules boundaries. This is important if you are an aspiring architect or you are in charge of creating an architecture skills development program within your organization. I have set up several such programs and it is critical that a clear understanding of architecture proficiency is defined and well understood.

2. **Professional development** – For existing architecture practitioners, this study may help to identify certain gaps in capability. While much of the study centers around aptitude and natural inclination, there is always an opportunity to strengthen skills through education. Perhaps there is a need for you or for your team to improve your work with pattern-recognition or extend your ability to document and manage abstract models. This study helps to highlight the importance of such capabilities.
3. **Recruiting** – Once you know how an architect thinks and approaches problems (in terms of abstraction, patterns, rules, etc.), you can be more effective at identifying and examining candidates for architecture roles. Pay close to attention to the individual’s grasp of abstraction, degree of comfort with metaphors, and ability to recognize, synthesize, and articulate patterns.

Conclusion

Every individual is unique, architects included. As such, we must be careful when drawing conclusions from this survey or any similar type of research. The data does not suggest (nor would it be wise to twist it to suggest) that there is any sort of causal link between activities / studies, childhood play, and architecture proficiency. On the other hand, it would be short-sighted to ignore the disproportionate degree to which musical and mathematic inclinations correlate with architecture aptitude. After all, architecture is a bit of art (music) and science (math) blended together to produce a system in harmony with the organization and other systems within the enterprise.

About Kyle

Kyle Gabhart is the Director of Emerging Technologies for Web Age Solutions. He is an enterprise strategist and architecture lead with an extensive experience leading Fortune 500s, as well as state and federal agencies, in the design, development, and implementation of complex business processes and information systems. Kyle is equally comfortable in the board room facilitating the creation of the enterprise vision or in the server room leading the detailed modeling and implementation of the strategic vision. Mr. Gabhart’s blog is available at <http://www.archvalue.com>