

K'Nex Guns: Open Source Hardware on Instructables

Ignite Talk at the 2007 Web2.0 Expo

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Intro:

I gave this talk on Sunday night; it was a fun talk, explaining how a group of K'Nex gun-building kids are showing us how open-source hardware can work. On Monday, there was a tragic event at Virginia Tech that makes this talk feel quite different. Brady, Jen and I decided to remove the videos I'd planned to show, and instead added a framework to view the rest of the talk.

This talk highlights a community built around creativity, innovation, and cooperation.

Let's specifically focus on community.

We are Web2.0- community is what we're all about. We specialize in CONNECTING people; in giving them the tools to realize their potential.

I'd challenge you to remember why you do what you do. While technology is fun and exciting, it's really all about the people.

Slides:

1. With that in mind, I'll share this case study of a sustainable open-source community we've found on our site centered around the design and construction of K'Nex guns.
2. These are the things we see making a sustainable open-source community work.
3. Instructables- the platform for all sorts of how-to projects, designed to lower the barrier to entry. It's brain candy for all types of creative geeks.
4. Kit of Parts. K'Nex is this generation's LEGO. Intended for peaceful exploration and instruction: Ferris wheels, cars, roller coasters if you're really out there.
5. Obviously they build guns. Why? They're teenagers. Be honest- what did YOU do at 14? If we'd had K'Nex this is exactly what we'd have been doing at that age. You probably recognize yourself and your friends here; I certainly do, and these people now have multiple degrees from MIT. We've a vested interest in helping these kids achieve their potential.
6. Mike's Lego CAD is a Lego cad program that's been co-opted for use with K'Nex. Allows contribution even without access to a digital camera.
7. You can use this program to build subunits...
8. That can fit together into something enormously complicated.
9. This is a tripwire/Claymore mine- when your little brother sneaks into your room... BOOM! it will shower his legs with plastic pieces.
10. This is killerk- despite his aggressive name he's the original anchor point for this community. He's messaged anyone who might possibly be

- interested in k'nex guns. He set the bar for great projects by documenting thoroughly, taking great pictures, and integrating video.
11. He has left over 600 comments. He's always helpful, offers advice, and specifically says he's anticipating and looking forward to others' projects. He has established himself as a leader in this community, and works to build a positive community that is helpful, encouraging, and excited.
 12. Creating anticipation- excited about novelty and exciting design.
 13. Spontaneous contests- they're running their own contests to drive new designs.
 14. Motivation- why are they doing this? It's because they're teenagers! This is a full-sized crossbow, one of many crossbow designs on the site.
 15. The group members make some pretty impressive & complex stuff- this is a gatling gun.
 16. This is also a good excuse to learn video editing, with titles, fades, and soundtracks. This screencap shows one of the videos I'm not going to play for you, but they're all on the Instructables site. This is a Ferris wheel turned Gatling gun. The theme- learn and modify.
 17. Here's where everything comes together: the combination shotgun/rifle, aka the Shifle. The Shifle uses parts from other popular K'nex guns, and the user actually lists where they came from. His innovation is in combining the previous designs into a functional monstrosity. This is incredibly detailed- it's a *28 step* Instructable,
 18. Community was really excited, and everyone has been inspired to make improvements. You can't just post a slight variant- they want innovation and good documentation.
 19. Mature community self-polices: they now vet guns within the community Forums before posting them as full Instructables. There are also splinter groups, such as this one, dedicated to non-gun K'nex projects to "help humanity". This is an ipod car mount; another Instructable on a reach-extending grabber for a dad with a bad back.
 20. These kids are growing up within the community. They're NOTICING things. Looking at the outside world, relating to each other, debating policy, and paying attention. These types of community interactions allow even geographically isolated kids to come together to learn, grow, and exercise their creativity in productive ways. They'll eventually grow out of the gun fascination, but will keep the skills learned in this community. THESE are the scientists and engineers you'll be hiring in another 10 years.